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The Impact of Public Policy on Social and Moral Norms: Some Examples

ABSTRACT. Social and moral norms may be required for a sustainable development of private consumption patterns. But how can public policy influence norm-motivated consumer behaviour? Based on a recent research project two possible mechanisms for such influence are outlined. The first focuses on behaviour motivated by social approval or disapproval; in such cases, policy can sometimes lead the economy into, or out of, "good" or "vicious" circles, with potentially dramatic consequences for aggregate behaviour. The second mechanism relates to internalized moral motivation; in this case, policy may affect consumers' perception of what morally responsible behaviour means. Explicit inclusion of such mechanisms can change the predictions from economic models in important ways; however, results may depend crucially on whether norms are enforced by social approval or through internalized self-sanctioning. Survey data on considerate smoking behaviour, recycling of household waste, and voluntary community work support several assumptions and predictions from the theoretical models discussed.

Different private consumption patterns produce different levels of environmental damage and natural resource depletion. Hence, when considering policies for a sustainable development, it is important to study the determinants of consumer choice, including public policy's ability to influence those choices. A substantial amount of work by environmental economists has demonstrated how individual behaviour can be influenced by price incentives, such as green taxes, and by more direct types of regulations, for example rationing or standard requirements (for a review, see Cropper & Oates, 1992).

Nevertheless, casual observation indicates that economic incentives and direct regulations are not the only means used by governments to promote the sustainability of consumer behaviour. For example, in promoting households' recycling of waste or energy saving (see, e.g., Gardner & Stern, 1996; Hopper & Nielsen, 1991), public authorities sometimes use advertising campaigns where the purpose simply appears to be that of reminding consumers of their moral responsibilities.[1]

Social and moral norms have been studied extensively in disciplines

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such as law, sociology, anthropology, and social psychology (e.g., Coleman, 1990; Hechter & Opp, 2001; Opp, 2002; Posner, 2000; Schwarz, 1970; Stern, 2000) but until recently, they played a minor role in economic theory. During the last decade or two, however, economists have made considerable progress in integrating social and moral aspects of human behaviour into economic theory. Some of the notable contributions are Akerlof (1980, 1997), Andreoni (1990), Becker and Murphy (2000), Durlauf and Young (2001), Elster (1989), Frey (l997), Holländer (1990), and Manski (2000). This has substantially facilitated the task of analysing issues closely related to norms using the formal methodological tools commonly applied in economics.

A recent research project at Statistics Norway from 1998 to 2000 set forth to study possible interrelationships between social or moral norms, public policy, and individual behaviour towards the environment. The project included theoretical analysis of social as well as moral norms; in addition, in an interview survey with nearly 1,200 respondents, data were collected on behaviour and attitudes relating to smoking in private homes, recycling of household waste, and voluntary community work. Each sub-project is documented in more detail elsewhere, including formal presentations of the theoretical models (Brekke, Kverndokk, & Nyborg, forthcoming; Bruvoll, Halvorsen, & Nyborg, 2002; Bruvoll & Nyborg, 2002; Nyborg & Rege, forthcoming and 2003). However, several of these papers are fairly technical in style, focusing on separate parts of the project. My aim with the present paper is to point out some connections between the different approaches we have taken, and to provide an overview of the most interesting results in a non-technical fashion aimed at an interdisciplinary audience.

The analyses presented below provide several examples of how public policy can influence individual behaviour through social or moral norms. By a *norm* I will refer to an informal rule requiring that one should act – or not act – in a particular way in a given situation. Since economic analysis focuses on incentives, it will be useful to distinguish different types of norms according to how they are enforced. Hence, by a *social norm* I will refer to a norm which is enforced by approval and/or disapproval from others. Over time, social norms can become internalized such that individuals sanction themselves – e.g., by getting a bad conscience – if breaking the norm. Below, an internalized norm about what is right or wrong, which is sanctioned only by oneself, will be denoted a *moral norm*.[2]

In practice, there will hardly be a clear distinction between social and moral norms; the two will generally work together, and may reinforce or perhaps even undermine each other. Indeed, a norm could hardly become internalized at all unless a social norm were present initially. Nevertheless, the mechanisms leading to effects of public policy on individual behaviour are different in the two cases; thus, for analytical convenience, and also to focus attention on one argument at a time, I will disregard internalized moral norms when discussing social norms, and similarly disregard preferences for social approval or disapproval when moral norms are discussed.

SOCIAL NORMS: ANALYSING THE EFFECTS OF A SMOKING REGULATION

The importance of social norms for economic outcomes has been emphasized by many authors. Akerlof (1980) pointed out that social norms may limit the range of contractual arrangements employers wish to offer employees, which may in turn lead to fewer employment contracts being entered and thus greater unemployment. Social norms for not relying on welfare payments can enable society to keep a more generous welfare state than would have otherwise been possible (Lindbeck, 1997; Lindbeck, Nyberg, & Weibull, l999). Bernheim's (1994) analysis of conformity norms provides one explanation of customs, fads, and multiple subcultures; while Binder and Pesaran (2001) show that conformity norms may affect the time path of aggregate consumption.

Preferences for social approval imply an interdependency between preferences of different individuals that is not present in the simplest versions of consumer theory (nor in the moral motivation model discussed below). If norms require conformity, for example, the most important factor determining what a consumer *A* chooses to wear may well be what everybody else wears; variables such as relative prices and income may have much less explanatory power. Similarly, consumers may feel a strong social pressure to recycle their household waste if everybody else does it, while the desire to be like everybody else will work against recycling if others do not recycle. Thus, social norms of conformity easily produce herd behaviour, which may lead to "good" or "vicious circles" (see Schelling, 1978, for an intriguing collection of examples). Such "circles" can occur even if

consumers have no preferences for conformity as such, provided that there is some other mechanism that makes the individual benefit from a certain behaviour when the number of others who behave in the same way increases.

Social norm models are thus often characterized by *multiple equilibria*, meaning that there are several alternative situations such that once the economy has (for some reason or the other) reached one of them, no forces (such as market forces) work to push the economy away from it. Such equilibria may be very stable, even in cases where everybody would benefit if the economy had moved to another equilibrium. If behaviour is guided mainly by the desire for social acceptance, then economic incentives can have much weaker effects than predicted by a traditional economic model. Nevertheless, this holds only up to the point where the policy change is substantial enough to push the economy away from the initial equilibrium and towards another; because once this happens, the resulting change in behaviour can be quite abrupt and dramatic. Consequently, public policy's indirect effect on aggregate behaviour through changed social norms can, in certain circumstances, be quite substantial, due to the "good or vicious circle" effects.

Rege (forthcoming) shows that public policy can crowd in or crowd out a social norm encouraging voluntary contributions to a public good. She assumes that contributors scorn non-contributors, but approve of other contributors; and that contributors tend to stick together, so that they meet contributors (and are exposed to their social approval) more often than non-contributors do. These assumptions produce two equilibria; one in which everyone is a contributor and where there are strong social sanctions against non-contributors, and another in which no one contributes and where social sanctions are weak. Thus, in the former equilibrium a social norm towards contributing is enforced by social sanctions, while in the latter equilibrium no such norm is enforced. Rege shows that if the government subsidizes voluntary contributions to public goods (green taxes are equivalent to a subsidy of contributions to the environment in this model), this may move the economy from the no-contribution equilibrium to the equilibrium in which everybody contributes. Government provision of public goods, on the other hand, may cause the reverse process.

Nyborg and Rege (forthcoming) provide another example of public policy's potential effects on behaviour motivated by social approval

or disapproval. We demonstrate that the Norwegian smoking law amendments of 1988 may have been sufficiently large to set off a move from one equilibrium in which inconsiderate smoking behaviour in private homes is socially accepted to another equilibrium where a social norm for considerate smoking is indeed enforced. We thus demonstrate how a legislative change can indirectly change behaviour even in places where the legislation does not apply, through its effect on social norms.

The 1988 amendment of the Norwegian *Act Relating to Prevention of the Harmful Effects of Tobacco* prohibited smoking in "premises and means of transport to which the public have access," as well as in "meeting rooms, work premises and institutions where two or more persons are gathered." A few exceptions applied, but for most people, smoking was no longer permitted in their working environments. Of course, the regulations did not apply in private homes. Nevertheless, the evidence reported below indicates that smokers' behaviour has become much more considerate since the smoking law amendments, *even in private homes*. One possible explanation for this is that the new regulations induced a change in social norms.

Nyborg and Rege (forthcoming) assume that non-smokers react negatively when they are exposed to passive smoking. We consider these reactions as spontaneous and possibly even involuntary, i.e., not subject to a conscious choice on the non-smoker's part. Moreover, smokers are assumed to feel uncomfortable if they believe that others dislike their behaviour. Regard a smoker who is determined to have a cigarette, but who is considering whether or not to go outdoors to smoke it. Staying indoors, the smoker will get negative reactions from present non-smokers. Leaving the room and going outdoors, the smoker may be cold and wet. Hence, somebody who is very concerned about being socially accepted will presumably go outdoors, while another, who is less anxious about such things, may choose to stay indoors and rather face non-smokers' disapproval.

Assume that non-smokers' negative reactions are *stronger* the less used they are to passive smoking. This may be caused by physical or psychological habit effects, or non-smokers may simply be more disappointed by inconsiderate behaviour if this is uncommon and thus unexpected. Consider the case where initially, every smoker is inconsiderate (smokes indoors). This means that non-smokers are used to passive smoking; thus, their negative reactions, and hence social sanctions against inconsiderate smokers, are weak. Consequently, for

smokers, the displeasure of social disapproval is smaller than the displeasure of leaving the room to smoke. Under certain conditions, this will be a Nash equilibrium; i.e., given every other smoker's behaviour, no individual smoker has an incentive to change behaviour.

On the other hand, if initially every smoker were considerate, non-smokers would not be used to passive smoking, and their social sanctions would thus be strong. If the reactions were sufficiently strong, then the situation where a substantial share of smokers (possibly every smoker) smoke outdoors is also a Nash equilibrium. The model produces "herd behaviour": There is a strong incentive for smokers to behave like other smokers, even though we have not assumed any preferences for conformity.

In 1988, Norwegian non-smokers became protected against passive smoking for much of the time. Thus they became less used to it, which may have strengthened their spontaneous negative reactions to being exposed to passive smoking. Consequently, after implementation of the new legislation, smokers would face slightly stronger social sanctions even in the unregulated zone, such as private homes. Those smokers who care the most about social approval would then change their behaviour and become considerate (go outdoors to smoke). But this, in turn, makes non-smokers even less used to passive smoking, thus reinforcing the negative reactions even more, leading even more smokers to become considerate – and so on. This process would continue until it reached a new equilibrium where only those smokers who care the least about social approval continue to smoke indoors in private homes.[3]

In the new situation, not only behaviour has changed, but also attitudes: The social sanction imposed on an inconsiderate smoker in the new equilibrium is much stronger than it was in the initial equilibrium. It seems fair to say that a social norm (as this was defined in the introduction) for considerate smoking has been established: There is now an informal rule requiring that one should not expose others to passive smoking, and this norm is enforced through social disapproval by non-smokers. Note that once the new norm has been established, it may in fact be stable even if the regulation is taken away; the strong social disapproval of inconsiderate smoking may provide a sufficient incentive for smokers to stay considerate. The role of public policy is in this case not to sanction inconsiderate behaviour in the unregulated zone, but to make the economy move from one stable equilibrium to another.

Our theoretical analysis predicts that under certain conditions, introduction of a smoking regulation of the type implemented in Norway in 1988 can lead to a quite *dramatic* change in aggregate smoking behaviour in the *unregulated* zone. As pointed out by Manski (1993), empirical testing of such hypotheses based exclusively on behavioural data is difficult and sometimes impossible, since changes in behaviour may have been caused by exogenous factors (for example changes in income or education levels) rather than by the type of endogenous social interaction effects suggested by the theory. Nevertheless, the theory does not only predict a change in behaviour, but also a change in non-smokers' *reactions* towards inconsiderate smoking behaviour – or, at least, the reactions that smokers expect. (However, this change in attitudes need not be correspondingly dramatic.) Behavioural changes brought about by exogenous factors would not necessarily be accompanied by changed attitudes. We have thus collected data on both behaviour and attitudes.

Empirical Findings

In our empirical study, we used Statistics Norway's Omnibus Survey 4/99, which was conducted in November and December 1999 with a representative gross sample of 2,000 adult subjects, and a net sample of more than 1,100 respondents.[4] Smokers were asked about their behaviour when visiting private homes, while non-smokers were asked about the behaviour of guests visiting their own home. Since no historical data were available on this, we also asked respondents above the age of 30 how they would have responded to a similar question 10 to 15 years ago. It may be difficult to recall correctly what happened so many years before, and our results must be interpreted with this in mind. Nevertheless, as the alternative was *no* systematic knowledge about individuals' previous behaviour, we still think the responses to these questions provide interesting information. Some of our results are reported in Tables I and II.

The results of Tables I and II are clearly consistent with the hypothesis that social norms for considerate smoking behaviour have changed in Norway. Although *levels* are different in the two tables, and smokers appear to perceive themselves as more considerate than non-smokers think they are, the reported *change* over time is striking in both cases. While in 1999 only 10 per cent of non-smokers said that smoking guests in their home usually smoke indoors (without asking first),

TABLE I
Responses from Smokers. Per cent.

Assume that you are visiting non-smoking friends, and you wish to smoke. There are no children present. What would you do most often?	*"Now" (1999)*	*10–15 years ago, age ≥ 30*
Number of respondents	366	268
I would smoke indoors	1.6	36.9
I would ask first, and smoke if the hosts said it was OK	47.3	41.8
I would not smoke indoors	50.8	16.0
Don't know	0.3	1.1
Did not smoke 10–15 years ago	–	4.1

Source: Nyborg and Rege (forthcoming).

TABLE II
Responses from Non-Smokers. Per cent.

When you have guests who are smokers, what do you experience most often? Assume that there are no children present.	*"Now" (1999)*	*10–15 years ago, age ≥ 30*
Number of respondents	795	563
Guests smoke indoors	10.4	73.7
Guests ask first, and smoke if I say it's OK	45.2	15.5
Guests do not smoke indoors	44.0	9.6
Don't know	0.4	1.2

Source: Nyborg and Rege (forthcoming).

as many as 74 per cent said this was the case 10 to 15 years before. Similarly, there is a considerable increase in the percentage who simply abstain from smoking indoors without even asking, according to the responses from both smokers and non-smokers.[5] In 1999, hardly any smokers said they would smoke indoors without asking.

Our survey also confirmed the hypothesis that social sanctions against inconsiderate smoking have increased after the introduction of the new smoking regulations. In 1999, 39 per cent of smokers said it is very likely that present non-smokers would dislike it if they smoked indoors, while only 19 per cent thought such reactions would

have been very likely 10–15 years earlier. Non-smokers themselves also reported a considerable increase in their negative reactions. Although these changes in attitudes are somewhat less dramatic than the reported changes in behaviour, they are statistically strongly significant. Hence, policy may indirectly have influenced behaviour which could not have been regulated directly.

The evidence reported above is consistent with the predictions from our theoretical model, but cannot verify that the observed changes in behaviour and attitudes were indeed caused by the new smoking regulations. Other explanations are also possible. In particular, a process such as the one described above could also have been initiated, or reinforced, by stronger beliefs about the adverse health effects of passive smoking. The stricter legislation may even be *caused by* changed beliefs about health effects, since this could secure the required political support; taking this into account would not substantially change the mechanisms of the model, however.

MORAL MOTIVATION

Not all voluntary contributions to public goods can be explained by the desire for social approval. Sometimes people seem to follow certain moral norms even if no one is there to acknowledge their behaviour. For example, some people anonymously donate large sums of money to charitable causes; when hiking in the wilderness, most people (although certainly not everyone) will pick up their trash even if no one watches. This kind of behaviour has been well documented by researchers in experimental economics; in controlled laboratory experiments, voluntary contributions to public goods take place even when subjects are granted full anonymity and there are no economic incentives to contribute; see Fehr and Falk (2002) and Schram (2000) for interesting discussions of apparently unselfish behaviour in economic experiments.

A fairly common way to describe altruistic behaviour in economic models has been to assume that individuals have preferences not only for their own access to private and public goods, but also for *others'* access to public goods (such as high environmental quality). However, Andreoni (1988) demonstrated that this formal description does not explain voluntary contributions to public goods in a satisfactory way: Its logical consequence is that people contribute almost

nothing, because even if you want others to have a good environment (or some other public good), you would still prefer that someone else provided it. Altruism of this type does not solve the free-rider problem. Andreoni (1990) suggested instead, in his well-known and much cited "impure altruism" or "warm glow" model, that people get utility – a feeling of "warm glow" – from the act of contributing. One interpretation of the warm glow model is, of course, that contribution to a good cause is essentially selfish after all, since it is motivated by the desire to have a good conscience; individuals feel better the more they contribute, but no explicit ethical judgement is involved. Sugden (1984) developed an alternative model for morally motivated behaviour, in which he assumes that individuals maximize utility *subject to* self-imposed moral restrictions. He assumes that people act in accordance with a conditional rule, implying not that one must *always* contribute towards public goods, but that one must not free-ride when other people are contributing.[6]

In Brekke et al. (forthcoming), we formalize a certain type of explicit moral motivation, incorporating elements from both Andreoni's (1990) and Sugden's (1984) models. The model is grossly simplified in several respects; its contribution, I believe, is mainly to outline a framework for explicit inclusion of moral motivation in economic analysis. The model suggests a mechanism for policy influence on behaviour through norms which is very different from the one discussed above.

Our starting point is the concept of *identity* or *self-image*: We assume that individuals have preferences for a self-image as a morally responsible person. A good self-image is treated as an argument in people's utility functions in the same way as any other good or service. Consumers may be willing to bear a cost to achieve a self-image as a decent person; how much depends on the strength of the consumer's preference for this particular good. However, one cannot, of course, just go out and buy a good self-image. To be able to regard yourself as a morally responsible individual, it is reasonable to assume that you must first consider what you think is the morally right thing to do, and then compare your actual behaviour to this ideal.

In Brekke et al. (forthcoming), we assume that the closer the individual's *actual* contribution is to his perception of the *morally ideal* contribution, the better is his self-image. An important question is then how individuals determine what they think is the morally ideal contribution. We have assumed that individuals approach this by

asking themselves: "What would happen if everybody acted like me?" The answer to this question depends on many things; one of them is public policy. The implication is that when policy changes, the ideal may change. This may in turn induce a changed behaviour.

More formally, the morally ideal contribution is that contribution which would maximize social welfare, according to the individual's own view of a good society, subject to the constraint that all individuals act similarly. In other words, the assumed underlying moral rule is that you should do what you want others to do, which may be regarded as a simplified version of Immanuel Kant's categorical imperative. The plausibility of this assumption is supported by the survey described in the preceding section. Of those who claimed to recycle at least some of their household waste (93 per cent of all respondents), as much as 73 per cent agreed fully or partially that one of the reasons they recycled was that "I wish to think of myself as a responsible individual." Further, an astonishing 88 per cent agreed fully or partially that one reason why they recycled was that "I should do myself what I want others to do" (Bruvoll, Halvorsen, & Nyborg, 2002).

In the theoretical model, actual behavior is assumed to be determined through a two-step process: Individuals first determine what they believe to be the ideal contribution. When this has been done, utility is maximized in the usual way, weighing the benefits of obtaining a good self-image against its costs. Hence, individuals are utility maximizers, but their motivation is still moral in the following sense: Obtaining a good self-image requires an explicit ethical judgement ("how would social welfare be affected if everybody acted like this?"), and also that the individual's actual behaviour at least to some extent is influenced by this judgement.

In most economic models, public policy can affect individual behaviour either through effects on relative prices or through the set of feasible choices. In the present model, policy can also change behaviour by indirectly changing the morally ideal contribution. The latter implies that our policy predictions may differ from predictions of more traditional economic models. For instance, in certain contexts, introduction of a tax can induce a change in the ideal, which can counteract the incentive effect of the tax. One example of this is discussed below. Secondly, policy changes intended to stimulate voluntary contributions might actually make some people worse off: When individuals' perceived moral responsibility increases, it becomes more demanding

to keep a good self-image; and even though individuals can compensate by trying harder, some people may feel unable to keep up and suffer a loss of self-image.

Voluntary Community Work and Economic Incentives

In Norway it is customary that clubs, organizations, schools, and local neighbourhoods rely on joint voluntary work as a means of providing services required by the group; such as building a new playground, painting the club house, or cleaning the curbsides. This custom is called *dugnad*. In our survey, 69 per cent of all respondents were members of organizations using *dugnads*, and only 12 per cent of these said they never participate in the *dugnad*.

Assume now that in an attempt to increase participation, the leaders of the organization decide to introduce a fee for not showing up. Traditional economic theory would then predict that participation increases. However, there are at least two ways in which members can interpret the fee. The first is that the fee is merely symbolic, intended to remind people that it is indeed their duty to turn up. The other interpretation is that the fee is of a sufficient size to replace the members' work effort with professionals' services – and will be used for this purpose. In the latter case, members get an opportunity to contribute money instead of time; and if they value their time more than they value the fee, they will pay the fee and not turn up. By doing so, the self-image as a morally responsible person will not be impaired: They believe that a monetary contribution is just as good for the organization as turning up, and since it is to their own benefit to pay the fee, this is in fact the alternative which is best even from a social welfare perspective. In other words, the introduction of the fee changes the individual's perception of the morally ideal action. Consequently, within this kind of model, an economic incentive to participate can indeed, under some conditions, *reduce* participation. The reason is that it provides a means for the individual to "buy her way out" of the duty to participate.

With this reasoning, we would expect that participation decreases only among those who think the fee is sufficient, not among those who think it is insufficient. Table III reports responses on this from our interview survey, confirming these predictions.

Both the "enough" and "not enough" versions were posed to all respondents.[7] Hence, the responses in the two columns come from

TABLE III
Effects on *Dugnad* Participation (Voluntary Joint Community Work) of a Fee for Non-Participation. Per cent of Members in Organizations Using Dugnads. 802 Respondents.

"Suppose that you have to pay 100 NOK as an extra subscription if you do not participate in the dugnad. This is enough (not enough) to pay professionals to do the job. Would you participate more often, more seldom, or would it not affect your participation in the dugnad?".*

	The fee is enough to pay professionals	The fee is not enough to pay professionals
I would participate more often	10	19
I would participate more seldom	15	3
It would not affect my participation	75	77
Don't know	1	1

* 100 NOK = 11 USD (December 2000).
Source: Brekke et al. (forthcoming).

exactly the same sample and concern the same amount of money; the only difference is whether the fee is said to be sufficient or not. Note in particular that 15 per cent think they will reduce their participation when the interviewer informs them that the fee is sufficient, while hardly anyone will reduce it if the fee is reported to be insufficient. These findings are much in line with recent results by, e.g., Frey and Oberholzer-Gee (1997) and Gneezy and Rustichini (2000a, b).[8]

Recycling and Individual Responsibility

Imagine that local authorities improve the curbside collection systems for household waste, making recycling easier than before. A traditional consumer theoretic model will predict that individuals respond to this by increasing their effort if and only if the "warm glow" (or some other *private* benefit received from this) is strictly larger than the marginal cost of effort. If they feel that the burden of increased effort is not compensated for by the increased warm glow, they will simply not increase their effort, and in this case the changed collection system will not affect their utility at all (disregarding the possible environmental effects).

However, assume that people are morally motivated in the sense discussed above. When the curbside collection system is improved,

this can, in some cases, increase the ideal effort; i.e., the consumer may feel that *more* effort than before is required to keep a "green" self-image. If so, self-image goes down unless one responds by increasing one's effort. The policy imposes a heavier burden of moral responsibility on individuals, making it harder to meet the moral requirement. Even if individuals respond by increasing their effort, this does not necessarily bring them back to their initial utility level, since a better self-image comes at the cost of less leisure. Consequently, the policy change can *reduce* some individuals' utility level.

Note, however, that we do *not* claim that improved curbside collection will *necessarily* be perceived as a disadvantage by individuals. When recycling becomes easier, less *effort* (measured in time) may be required to recycle the same *amounts* of waste as before. Although the morally ideal recycled *amount* will certainly go up, the ideal *effort* (time spent) may decrease or increase. It is only in the latter case, and then still only under particular circumstances, that utility may decrease as discussed above. Our point is not to argue against improved recycling arrangements, but merely the following: For individuals who prefer a self-image as morally responsible, increased moral obligations can be a heavy burden to bear. For a more formal elaboration of this argument, see Bruvoll and Nyborg (2002).

In our interview survey, we posed the following question to those 990 respondents who had agreed in a previous question that recycling is beneficial to the environment: "Assume that the municipality arranges for more recycling in homes. Recycling is voluntary. Which of the following statements do you agree with the most?" About 40 per cent chose the statement "It is good that the environment is taken more into account, and for me personally it is an advantage that I now can increase my effort," while 34 per cent reported that this change would not mean anything to them. However, 26 per cent chose the following statement: "It is good that the environment is taken more into account, but for me personally it is a disadvantage that more effort is expected." This seems incompatible with standard consumer theory, which would predict that consumers would in this situation either benefit from increased "warm glow," or else they would not be affected. One explanation of these responses, however, is that of an increased perceived burden of individual responsibility, consistent with the model of Brekke et al. (forthcoming). Nevertheless, the formula-

tion used in the question was unfortunately somewhat imprecise, and other interpretations may also be possible.

In this discussion of moral motivation, the desire for social approval was disregarded altogether. However, in many situations there may – as mentioned above – be a close relationship between the two. For example, if a better curbside collection system increases most consumers' feeling of individual responsibility for recycling, this may also induce them to disapprove more strongly of neighbours who do not recycle. Such interdependencies have not been much studied by economists, but would be an interesting topic for future research.

CONCLUSIONS

Social norms and moral motivation are important determinants of everyday behaviour. Moreover, there are complex interdependencies between norms and economic motivation. Economists are becoming increasingly aware of this fact, and during recent years, a large body of economic research on these issues has emerged.

This paper has summarized some results from a recent Norwegian research project on economic modelling of social and moral norms. The explicit inclusion of norms in economic models, in the ways we have explored, leads to several conclusions differing from those that would result from economic models ignoring norms. We have shown that the introduction of a smoking ban in public places can reduce indoors smoking dramatically in *private homes* (Nyborg & Rege, forthcoming); that economic incentives for voluntary community work may *decrease* participation (Brekke et al., forthcoming); and, finally, that better curbside collection systems may impose a loss of utility on some households (Brekke et al., forthcoming, 2003; Bruvoll & Nyborg, 2002). Data from an interview survey with more than 1,100 respondents are consistent with these predictions (Brekke et al., forthcoming; Bruvoll et al., 2002; Brekke et al., 2003; Nyborg & Rege, forthcoming).

Our analyses have focused on two main types of informal norms; first, those enforced through social sanctions, and secondly, internalized moral requirements enforced only by individuals themselves. Both types of norms interact with policy in complex ways. However, the different enforcement mechanisms lead to quite different predictions concerning the effects of policy on individual behaviour. For

example, in Rege (forthcoming), economic incentives are reinforced by social norms: In her model, subsidization of individual contributions to a public good may push the economy into a "good circle" where more and more people contribute to the public good, motivated by social approval. This implies, for example, that green taxes may *crowd in* norms for environmentally responsible behaviour. In the moral motivation model of Brekke et al. (forthcoming), there are no such "good or vicious circles"; moreover, we have shown that economic incentives may in fact have adverse effects, through reducing individuals' perceived moral responsibility. This argument might also, in some cases, apply for green taxes.

The routes from public policy to individual behaviour suggested above are subtle and may be difficult for policy makers to exploit. However, if policy makers are unaware of such mechanisms, they run the risk of creating unintended and unfortunate consequences. For example, imagine an organization introducing a fee for those not participating in *dugnads*. The fee is insufficient to buy the required services in the marketplace, and is intended as a sort of punishment of those who do not participate. If this intention is not revealed to members, they may misinterpret it and think it is sufficient, and consequently – with a good conscience – cease participating, in which case the economic incentive has made the system poorer. Note that this is a problem only if the intention of the fee is not made clear to the members. When behaviour is motivated by a moral norm, *framing* thus becomes important; the way a policy is presented may be very important for its results.

Hence, the inclusion of norms in the economic analysis of public policy's effects on voluntary contributions to public goods yields predictions that differ from those based on traditional economic models; but *how* they differ depends on how norms are enforced, as well as the specific mechanisms linking policy to norm enforcement. Consequently, the interplay between public policy, norms, and individual behaviour, including the possible interplay between different types of norms, is a topic where much research is still needed.

NOTES

[1] A good example is a poster which recently appeared at central reception depots for recycled household waste (including hazardous waste) in Oslo, with a huge photograph of a small baby's face, and the words: "You won't poison me, will you?"

[2] Nyborg and Rege (2003) provide an overview of formal modelling techniques for economic analysis of voluntary contributions to public goods, including altruism models, social norm models, fairness models, commitment models, and models based on cognitive evaluation theory.

[3] In the formal theoretical analysis in Nyborg and Rege (forthcoming), the static analysis applies a non-cooperative game theoretic framework, while the movement between equilibria is studied using evolutionary game theory (see Weibull, 1996). This framework does not require strict assumptions on individuals' rationality and cognitive abilities: Individuals must be able to evaluate their own realized payoffs, but can learn gradually through trial and error or imitation.

[4] Net sample equals gross sample minus those who did not respond. More details on the survey are reported in Brekke et al. (forthcoming), Bruvoll et al. (2002), and Nyborg and Rege (forthcoming).

[5] The change is not caused by the fact that respondents below 30 did not receive both questions. If we compare "now" and "before" responses only for respondents above 30, thus using the same sample, the pattern is practically unchanged.

[6] On economic modelling of moral motivation, see also, e.g., Brennan and Hamlin (2000), Frey (1997), and Sen (1987).

[7] The sequence was changed for half of the respondents, but did not seem to affect responses.

[8] A more thorough comparison of their results with ours is found in Brekke et al. (forthcoming).

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