



The divisive and disruptive effect of a weight-based waste fee



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ABSTRACT

The ability of economic incentives to promote environmentally friendly behavior has been questioned in the literature. Most studies investigating this issue are grounded in the agent-based rational choice model. The aim of this study is to expand our insights by applying an alternative theoretical framework combining elements from classical institutional economics and self-determination theory to study incentives for waste sorting. The analysis is based on data from a Norwegian municipality, Ulstein, which introduced and later terminated a differentiated waste fee. There are three main findings. First, the important role of normative motivation for sorting household waste is confirmed. Second, the economic incentive had a divisive effect on the motivation to sort household waste. Perceived autonomy linked to fundamental values about environmental concern seems to play an important role in explaining why half the sample reports no extra efforts in sorting waste as a response to the economic incentive. The other half was influenced by the external logic given to them (i.e., to save costs and hence report increased motivation to sort household waste). Finally, an increased practice of illegal waste disposal was observed as a response to the differentiated waste fee.

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1. Introduction

There is a debate in the literature regarding if, respectively under what conditions economic incentives are effective in promoting pro-social and/or environmentally friendly behavior – e.g., Bowles (2008), Frey and Oberholzer-Gee (1997), Gneezy and Rustichini (2000), Scott (1995). This debate extends even to sorting household waste (e.g., Berglund (2005); Thøgersen (2003)) – where observed results of introducing incentives vary quite substantially from success e.g., Linderhof et al. (2001) to failure e.g., Miranda et al. (1994).

Most studies that have investigated this issue use some extended form of the agent-based rational choice model such as “motivation crowding theory”, where the utility function has been expanded to include various “intrinsic motivations”. However, less emphasis has been placed on social structures such as institutions and the interaction between these and the individual. The aim of this study is therefore to expand our insights concerning the interactions between institutional and individual factors. We thereby contribute to the understanding of the conditions under which economic incentives work as intended, and when they might not promote environmentally friendly behavior.

The analysis is based on a case study from a Norwegian municipality, Ulstein, which introduced and later terminated a differentiated household waste fee. The differentiation was based on the amount of residual waste each household produced – a so-called weight-based waste fee (WEIGHT). The differentiated fee was introduced to increase efforts

for sorting waste for recycling purposes, but after only two years, WEIGHT was terminated and a fixed yearly waste fee (FIXED) was reintroduced. In analyzing the case, we combine two strands of theory: classical institutional economics and self-determination theory. The purpose is to see to what extent a combination of a structure based and an agency-based explanation can help in extending our insights into why effects of economic instruments vary so much.

The remainder of the paper is organized as follows: Section 2: theoretical framework; Section 3: the most relevant existing empirical studies; Section 4: case and methods; Section 5: results; Section 6: discussion; Section 7: conclusion.

2. Theoretical Framework

The most commonly used model to study economic incentives is rational choice: rationality understood as maximizing individual utility. This is the core of neoclassical (mainstream) economics. The use of a differentiated waste fee is grounded in this theoretical perspective. With a fixed yearly waste fee, there is no economic incentive to sort waste, and according to this model, the degree of sorting will be low.¹ Setting a price on the amount of waste that a household does not sort will however, motivate individuals to sort waste because it offers an economic gain from doing so.

One problem with this understanding is that it cannot explain the rather high levels of sorting observed with a fixed fee (Berglund and

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¹ Actually, it should be zero if there is no individual net gain from sorting.

Matti, 2006; Czajkowski et al., 2014; Thøgersen, 1994). There must be some other motivations involved than external rewards. Several theories exist that try to explain limitations of external rewards – including attempts to expand the standard rational choice model to include “internal rewards” and/or “intrinsic motivations”, (e.g., Andreoni (1990); Frey and Oberholzer-Gee (1997)), self-determination theory, e.g., Ryan and Deci (2000b) and classical institutional economics (e.g., Hodgson, 2007; Schuman and Johnson, 1976; Vatn, 2005). In our analysis, we combine the latter two theories because they both hold a pluralistic view on what motivates human action and focus explicitly on the dynamics between institutions and actors, while doing so from different angles. In the following we briefly describe the two theories and discuss how they can supplement each other to offer new insights to understand the effect of economic incentives on human motivation and action.

2.1. Classical Institutional Economics (CIE)

CIE is part of a broader field of institutional theory drawing on insights from, for example, sociology and political science. It emphasizes the interdependency between institutions and individuals when analyzing social phenomena and human action. Institutions are defined as conventions, norms and formally sanctioned rules (Scott, 1995; Vatn, 2005). Further, March and Olsen (2006: 8) highlight that institutions “provide codes of appropriate behavior, affective ties, and a belief in a legitimate order”. Thus, the focus of attention is moved from the individual, as in standard rational choice, to the interdependent dynamics between institutions and individuals’ motivations and actions.

As institutions have the power to influence behavior by forming individuals’ interests and perceptions, CIE understands rationality as plural (Hodgson, 2007). Institutions create a basis for human interaction defining which logic is pertinent to specific contexts and thereby the rationality that is anticipated (Paavola and Adger, 2005). In some institutional contexts, the emphasis is on individual interests – as in markets – and the individual-utility-maximization model is one possible representation of what “drives” choice. In other contexts, the issue is about what is better for a group or the society. Hence, we can talk of individual and social rationality. The appropriate logic is defined by present conventions and norms. While Etzioni (1988) emphasizes that even individual rationality demands socialization to function well, the collective logic behind norms is important because it solves coordination problems for which the individual alone can find no resolution.²

CIE posits that values and norms are social constructs. While values represent views that are more fundamental about what is important in life, institutions, like norms, are action-oriented rules defining how such values can be supported or protected when acting in social contexts. With reference to our case, institutional theory suggests that a norm exists that guides people to sort household waste – a norm that solves the evident collective decision problem. The introduction of a WEIGHT holds the potential to change the type of motivation for why people sort household waste. That is, the logic could change from a rationality that considers what is the right thing to do to a rationality that focuses on individual utility. This could result in increased sorting. However, it could also imply a reduction if the incentive is too weak to compensate for the shift in logic or a shift to an instrumental logic that has no meaning for actors.³

² One of the reviewers note that Goal Framing theory (GFT) Lindenberg and Steg, 2007. Normative, gain and hedonic goal frames guiding environmental behavior. *Journal of Social Issues* 63, 117–137. is another attempt to systematically include multidimensionality in human motivation. We acknowledge this, while we also note that there is a difference in that CIE includes institutions as key social constructs to explain the creation of different motivational structures and which dominates in certain contexts.

³ The reader may ask why we do not call this “crowding out” of norms or intrinsic motivation (e.g., Bowles, 2008; Cardenas et al., 2000; Frey and Oberholzer-Gee, 1997). We avoid that language because “crowding out” has been so strongly linked to changes in parameters of a utility function, while CIE emphasizes the change in logic (e.g., between utility maximization and appropriateness).

Finally, CIE emphasizes the importance of perceptions. Institutions are interpreted and in turn these interpretations will cause variation in behavior. The personality – including genetics and the individual’s social history – influences both perception and the significance a person gives to a certain context – be it individually or socially oriented. Hence, we talk of propensities, which cause actions to vary both between and within contexts.

2.2. Self-determination Theory (SDT)

While CIE focuses mainly on the role institutions play for perception and motivation, SDT begins from the level of the individual and relates to the tradition that emphasizes *eudaimonic* well-being. “Well-being is fostered by reflective, purposive living in accord with deeply held social values” (Ryan et al., 2011: 47). Eudaimonic well-being stands in contrast to hedonic-well-being that involves a focus on the self, the present moment and the tangible. Accordingly hedonic well-being is about a momentary presence or absence of affections (Huta, 2015).⁴ Further, SDT assumes *autonomy*, *competence* and *relatedness* as basic psychological needs to human flourishing and mental health. The emphasis is on how motivation develops “in the individual” – on self-motivation (Ryan and Deci, 2000a; Ryan et al., 2011).

SDT advocates an understanding of *autonomy*⁵ as a key concept for understanding human motivation and behavior. Autonomy as postulated by SDT is rooted in eudaimonic well-being – i.e., “autonomy refers to volition – the organismic desire to self-organize experience and behavior and to have activity be concordant with one’s integrated sense of self” (Deci and Ryan, 2000: 231). Ryan and Deci (2000a) argue that only autonomy-supportive contexts will yield integrated self-regulation. Autonomy understood as a basic psychological need allows individuals not only to be “free in pursuing their potentialities and needs, but also to merge easily with a larger social whole” (Maslow 1971 in Ryan et al., 2011: 21). A higher degree of perceived autonomy (i.e., relative autonomy) is also associated with greater engagement and greater psychological well-being.

Formally, SDT comprises six mini-theories. Each of these addresses one facet of motivation or personality functioning (selfdeterminationtheory.org, 2015). In this paper we draw on the mini-theory Organismic Integration Theory (OIT) that addresses the process of internalization of various extrinsic motives (Ryan, 2009). OIT distinguishes between intrinsic and extrinsic motivation where Ryan and Deci (2000a: 56) define the former as “doing of an activity for its inherent satisfaction of the activity itself”. The focus is here on “the prototypic manifestation of the human tendency toward learning and creativity” (Ryan and Deci, 2000a).⁶ Extrinsic motivation is, on the other hand, seen as “a construct that pertains whenever an activity is done in order to attain some separable outcome” (Ryan and Deci, 2000a: 71) and is divided into four sub-categories depending on how integrated and internalized the institution is into the self.

The least integrated is an *external* regulation. This category refers to behavior that is “performed to satisfy an external demand or obtain an externally imposed reward contingency” (Ryan and Deci, 2000a: 61), and involves feelings of control. The second is an *introjected* regulation that is mostly about enhancing or maintaining self-esteem – ego-involvement, internal rewards and punishments like pride and guilt. The third is an *identified* regulation meaning that the person has

⁴ Rational choice theory is a fundamentally subjective theory and can therefore only relate to hedonic well-being.

⁵ This study is limited to studying different kinds of motivation related to sorting household waste. Hence, *autonomy* is a relevant concept that will be discussed. The concepts *relatedness* and *competence* are however not emphasized in this paper.

⁶ Notable is that Deci and Ryan’s work originates in studies of learning and first of all is oriented towards how teachers, parents, leaders, coaches, etc. can mobilize others to act. We note that this focus represents a potential challenge when applying their insights in the field of environmental action.

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