The use of economic incentives in recycling policy to secure environmentally friendly outcomes

A qualitative study of the effects of an economic incentive on recycling motivations and behaviors at household waste levels

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Declaration

I, Eva Vanessa Estensen, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature……..
Date……

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Abstract

Economic incentives (EI) are increasingly being used to secure environmentally friendly behavior. The rationale is based on the predictions of neoclassical economic theory, which assumes stable preferences. However, preferences are influenced by institutions according to the classical institutional economic theory. The involvement of EIs may change the norms by attracting an 'I' rationality that focuses on own utility, instead of a 'We' rationality that focuses on the social group. Existing empirical findings suggest that EIs may have the opposite of the intended effect. Moreover, theories suggest that they may 'crowd out' initial motivations or 'reframe' recycling from a 'domain of morality' to a 'domain of economy'. Therefore, a better understanding of the effects is called for.

This study looks upon recycling practices at the household waste level in three municipalities in Norway where an EI has already been implemented. A thorough overview of how the Pay-by-the-bag renovation system in the municipalities work was gained through structured interviews with representatives from the renovation companies and municipality offices. The **first objective** of the study is to investigate whether the use of EIs is effective in increasing recycling behavior and whether it is an optimal instrument to use. The **second objective** is to contribute to the literature on what motivates recycling and how they may be influenced by economic incentives. The **third objective** is to support that individual preferences and choice are influenced by the surrounding institutions, which the neoclassical economic theory does not accept. Using semi-structured, in-depth interviews the participants describe the effect the EI had on their motivations to recycle and recycling behaviors.

This study revealed that the main effect the EI was that 63% of the sample decreased their delivery frequency of unsorted waste. Moreover, only a quarter of the sample increased their recycling. Hence, 37% did not change their recycling routines and habits. Perceptions of the EI influence the effect it had. Meanwhile, the norms surrounding recycling may have weakened due to the EI by that it does not match the 'domain of morality' which recycling is within. Also, and the monetary aspect discredits that recycling is for the environment. 'Crowding out' of motivations is not indicated in the results; however a reframing from 'We' rationality to 'I' rationality is may have occurred in some participants. Hence, EI are not an optimal long term instrument. An initial study mapped out various motivations to recycle in two institutional settings; one without an EI and one with. Three variables that had changed between the two settings are further investigated in this study, namely; sense of duty, positive and negative feelings. The results were that around half of the sample felt neither duty nor feelings attached to recycling, yet they recycle. It is suggested that for some, recycling is a habit that was learned early and not necessarily a behavior with emotions attached to it. However, 48.4% of the sample felt 'wrong' if they threw a material in the wrong bin, while 51.6% felt positive feelings when they recycled. Here, the feelings are seen as consequences of adhering or breaking a norm. Many of those who did not feel sense of duty to recycle increased their recycling due to the EI. It is argued that the reason why some people do not recycle or are not motivated to before the EI provided a motivation, is that they are unsure of whether the material is actually recycled or of that it is environmentally beneficial. In view of that only a quarter of the sample increased their recycling and the negative consequences of, it is concluded that the EI is not an optimal instrument to use on a long term scale.

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1 Introduction

1.1 The problem

The amount of extraction of natural resources and waste is continuously increasing along with global development and population growth resulting in increased environmental degradation. In Norway, the annual amount of waste has increased by 30% since 1995 (SSB[7], 2010) which demonstrates the continuous increase in consumerism. There is a pressing need to increase levels of recycling in both public and private sectors. Recycling implies a cost to the individual, but a benefit for society and the environment. So the individual must make a decision between doing what is in the interest to oneself or the social group; this form of situation is termed a social dilemma (SD). Stern (1978) suggested two ways to attempt to resolve a SD and the first is to make it in the interest of the individual to behave in a pro-social manner. The second is to persuade individuals to accept the pro-social values. In order to do this, appropriate policy instruments must be used. Some of the potential instruments are economic incentives (EIs) (e.g. taxes, subsidies, tradable permits), legislation (e.g. bans, permits, standards) and informational measures (e.g. campaigns, recommendations, labeling). The purposes of these are to change the costs, framework conditions, preferences and habits, respectively. Such incentives are created to motivate people to make certain choices and engage in certain behaviors. Increasingly, several policy makers adopt the first solution suggested by Stern (1978) and introduce EIs with the rationale being that it makes what is socially desirable individually beneficial as well (Peace & Turner, 1992, in Thøgersen, 1996). Their predicted effects are based on neoclassical economic theory, but its use has been criticized on several grounds, some of which will be described in chapter 3. In this paper, classical institutional economic theory is argued to be a more reasonable model in predicting choice, as it recognizes that institutions have an influence on people's preferences and therefore their choices. Meanwhile, neoclassical economic theory views institutions as external to an individual, and that they cannot change an individual's set preferences.

Even though EIs often guide individuals to make choices that are socially desirable, they should not be assumed to be the most effective nor efficient instrument to take to resolve all SDs. In some cases they are found to not have their predicted effect (Katzev and Pardini, 1987). EIs can also have negative effects if implemented to change behaviors that are based on or steered by norms and/or habits. They may cause the initial motivations to be replaced, or 'crowded out', by economic motivations by reframing the behavior from a 'domain of

morality' to a 'domain of economy' (Schwartz, 1970, in Jackson, 2005). The EI could also remove internal rewards gained from the behavior and therefore reduce utility. Moreover, some may reduce their engagement in a behavior because the price or fee may be seen as sufficient for 'buying' the service of others (Frey, 1993; in Thøgersen, 1996). On the other hand, if the EI is seen as symbolic in the sense that it tells a person that one is doing the 'right' thing, it may encourage the behavior (Frey, 1993; in Thøgersen, 1996). It is suggested that doing 'the right thing' is a motivation in itself, even when the behavior does not add to the individual's utility (Vatn, 2005). Moreover, it has been argued that some behaviors are not necessarily consciously calculated upon but are rather learned habits from young age (Hodgson, 1988). Hence, it is important to understand and highlight what situations EIs are not an appropriate policy instrument. The pro-environmental behavior studied here is recycling and the circumstances are that an EI is present in Norwegian municipalities where recycling norms and habits are to an extent already established.

1.2 Purpose of the study

In order to create an effective recycling policy, an understanding of what motivates people to recycle is required. Just as important, one must be aware of how the incentives in place work and what their effects are. The purpose of this study is to contribute to the literature on the effect of EIs on household recycling, as well as whether and how it influences motivations surrounding the behavior.

Norwegians have recycled for a long time without EIs in place. According to utility theory, an EI will increase recycling while theories on norms predict it could go either way. Given that recycling is a habit for many Norwegians and norms surrounding recycling are established, it is of interest to determine the effects an EI has had in this setting.

Even though a number of studies have been carried out on the matter, few use in-depth interviews as a method. By using in-depth interviews, this study may reveal new themes or trends. The mixed predictions of theoretical standpoints and mixed empirical findings create uncertainty about the effect of EIs. As it is an increasingly popular policy instrument, its effects need to be known. Moreover, past literature and studies find norms, internal costs and rewards to be of importance for recycling behaviors. This study aims to learn what their influence is on recycling where an EI are in place and whether the EI may have changed those influences. However, this is not a longitudinal study so the change over time aspect will rely

on the interviewees' memory. Improved knowledge on the effects of EI on recycling practices could be used in Norwegian waste policies. One of Norway's national aims has been that 75% of waste should be recycled by 2010, and that aim has been met (The Climate and Pollution Agency, 2010). The current goal is to increase that percentage to 80%. This study can contribute to reaching that goal as it may help improve recycling policies in the various municipalities in Norway.

In addition, this study aims to evaluate whether a classical institutional economic theory is more suitable in explaining and predicting motivations and behavior compared to neoclassical economic theory. The expected success of EIs stems from the neoclassical economic theory as its assumptions entail that its implementation cannot have negative outcomes. Meanwhile, psychological and social theories suggest that there might be, which the classical institutional economic theory can account for. The economic theoretical framework used when creating policies to change behavior is vital in both making correct predictions and in explaining the results of a policy. Therefore, this study will compare the two theoretical standpoints' ability to explain the results.

This study is part of a large project named Environmental Policy and Human Action that is financed by the Norwegian Research Council (Forskningsrådet). The project is being conducted by Marit Heller under the supervision of the project leader Arild Vatn. The role of the current study is to contribute with qualitative data on recycling in a setting where an EI is present. Prior to the current study, the preliminary results of an initial study conducted by Marit Heller were used to guide the direction of the current study, as well as some of the research questions. These results will be presented in section 4.2 where there is also a more elaborate description on the project structure.

1.3 Objective and research questions

The first objective of this study is to investigate whether the use of EI is effective in increasing recycling behavior and whether it is optimal in the long run. There are theories that predict negative consequences on both behavior and motivations from using EIs to increase a voluntary behavior that is usually done on the basis of norms. The following two research questions were formulated to investigate what effect the EI has had on both recycling motivations and recycling behavior in the areas of study:

Research question 1: What effect has the economic incentive had on motivations to recycle?

Sub question 1: What motivated the participants to start recycling?

Sub question 2: What were the main reasons the participants recycle today?

Research question 2: What effect has the economic incentive had on recycling behavior?

Sub question 1: Did the participants change their delivery habits?

Sub question 2: Did the participants change their sorting habits?

The second objective is to add to the knowledge base of what constitutes motivations to recycle and how those motivations may be influenced by an EI. Past research has shown norms and feelings to be of importance in recycling practices. Moreover, the preliminary results of an initial study (in section 4.2) indicate that these relations are different in setting with an EI present than in those without. They showed that duty is significant for recycling degree and habit in both institutional settings; one with an EI present (The PBTB fee system) and one without. However, it is more significant for recycling degree in the PBTB fee system. Moreover, those results showed that the relationship between positive feelings and wanting to contribute to the environment was not significant in the PBTB fee system, yet it was in an analysis of both fee systems. This indicates a loss of internal reward that likely stems from internal motivations when an EI is present. In order to investigate these issues, this study will also address three variables that emerged from the SEM analyses in the initial study, namely duty, negative and positive feelings. The latter is reflective of norms assuming Ostrom's theory of feelings as reactions to whether one has broken or adhered to a norm. To address these issues, a third research question was formulated:

Research question 3: In what ways do duty and feelings influence recycling in a setting with an EI present?

One of the differences that the preliminary results revealed was that in the PBTB fee system, environmental consideration was only significant to the habit of recycling at a 0.1 level, while in the analysis for both fee systems it was at a 0.01 level. Hence, environmental consideration is more significant to recycling habits in municipalities with a flat fee system. Meanwhile, duty and self perception become more significant for recycling degree in the PBTB fee

system. This may suggest that once the idealistic motivation for recycling, 'consideration for environment' is weakened, one's recycling behavior is increasingly motivated by sense of duty. To address this thought, the fourth research question was formulated:

Research question 4: Has the economic incentive influenced the norms surrounding recycling?

A third objective is to support the notion that institutions influence preferences and therefore choice which is contested by the neoclassical economic theory. This lead to the last research question:

Research question 5: Is the neoclassical economic theory able to explain all the findings that will be revealed in this study compared to the abilities of the classical institutional economic theory?

Summary of research questions

1: What effect has the economic incentive had on motivations to recycle?

Sub question 1: What motivated the participants to start recycling?

Sub question 2: What were the main reasons the participants recycle today?

2: What effect has the economic incentive had on recycling behavior?

Sub question 1: Did the participants change their delivery habits?

Sub question 2: Did the participants change their sorting habits?

3: In what ways do duty and feelings influence recycling in a setting with an EI present?

4: Has the economic incentive influenced the norms surrounding recycling?

5: Is the neoclassical economic theory able to explain all the findings that will be revealed in this study compared to the abilities of the classical institutional economic theory?

1.4 Structure of this paper

First some background information is given before moving on to the chapter will the theories used in this study followed by some relevant past empirical studies. Then the method of this study is described. After that the results and analysis are presented. Subsequently, there is a discussion and recommendations for future policies are given.

2 Household waste management in Norway

Recycling is one of the main priorities in Norwegian waste policy (LOOP, 2012). Households are one of the main sources of waste and so it is an important sector where recycling is encouraged.

The Norwegian Parliament made changes in the 'pollution law' (Forurensingsloven) in 1991 opting for increased responsibilities for the municipalities with regard to waste handling. The main changes include that the municipalities must introduce a system to recycle at a household level; there are stricter requirements to recycling the waste; that municipalities are to create their own waste handling plans and that the renovation fees should cover all expenses. The Ministry of Environment suggested inter-municipal cooperation for the smaller municipalities as it would make meeting these requirements easier. Nevertheless, each municipality holds the primary responsibility for their waste handling policies. These mainly include oversight on the pollution and waste situation; demanding households and companies take measures to reduce and/or prevent pollution; invoicing and to decide on a waste handling plan.

In 2009 a new act against dumping organic dissolvable waste, which includes foods and paper, was passed. The renovation companies then had to set up a strategy of how to make sure that organic waste is kept separate from the unsorted waste they collect from the households. The options were to either implement organic waste as a recyclable material that gets collected from the households, or keep the organic waste in unsorted waste category and deliver it to incinerators to be burned.

To meet these new requirements, some municipalities chose to use EIs to increase recycling in the households, such as a pay-by-the-bag (PBTB) fee system. In such a scenario, one would have to pay a certain amount for every delivery of unsorted waste. The more you recycle, the less unsorted waste; making it is cheaper for those who recycle more. Such policies are in line with the polluter-pays principle which is in the Norwegian Pollution Control Act § 2 –5.

Other municipalities instead have a flat fee system, where a household pays a set fee for the waste handling service, regardless of recycling efforts. Here, the authorities are relying on that people will voluntarily recycle, as has been practiced in Norway for quite some time. The waste disposal strategy of those municipalities that chose this policy is most likely to send the waste to an incinerator, as it is not legal to dump waste containing dissolvable organic waste.

3 Theory

In this chapter the theories that form the framework of this study are presented. Two economic theories make up two different departures for understanding choice in SDs. The core of the neoclassical economic theory is the individual and utility theory, while the core of the classical institutional economic theory is institutions and the idea that choice is guided by them. The economic literature is extensive, so the two opposite models of economic theory were chosen. After these two models, some theories that originate from social science relevant to recycling are presented as well.

As described above, SDs are when one must choose between what is most beneficial to the social group one belongs to, and what is most beneficial to oneself as an individual. The different theories give different plausible reasons for what choice the agent will make.

3.1 Neoclassical economic theory

Economics is the study of human behavior as a relationship between scarce means and ends. The neoclassical economic theory studies this using supply and demand models and it currently dominates mainstream economics (Brennan & Moehler, 2010). In the neoclassical economic model the key assumptions are that people are rational in the sense of maximizing own utility, have stable preferences and act independently on full and relevant information (Weintraub, 2002). Note though that there are branches of neoclassical theory that may have slightly different approaches to the assumptions.

To be rational implies that one has preferences to maximize individual utility and that the individual is able to calculate what maximizes his/her utility (Vatn, 2005). The neoclassical economic theory treats rationality in a way different of other social sciences. First of all, it does not accept any influence of values or goals. Also, it proposes an existence where "behavior is objectively rational in relation to its total environment, including both present and future environment as the actor moves through time" (Simon, 1986:210).

According to the neoclassical economic theory, preferences are independent of the institutional setting. Instead they are stable, given preferences that guide decisions based upon them which are not changed even when the context is different. Institutions are seen to "only establish the stage at which the individuals act" (Vatn, 2005:11). Therefore, norms, values and morals are not considered to influence choice. This theory predicts that a change in external

rewards, particularly monetary ones, will alter the cooperative behavior accordingly. Hence, the introduction of an EI will make behavior that is socially desirable, such as recycling, individually beneficial as well. This line of thought is the basis for introducing EI to stimulate increased recycling behavior. In the scenario of the current study, households must pay for each delivery they make of unsorted waste. According to this theory every household will recycle more as a response to the EI so that they can decrease the number of deliveries in order to avoid the fee, thereby maximize own utility.

Information and transaction costs are assumed to be zero in this theory, thereby it assumes that the individual has perfect knowledge at all times and is able to calculate which choice or behavior will maximize own utility (Hodgson, 1988).

3.2 Classical institutional economic theory

Throughout the years it has been requests that economists disregard their simplistic view of human behavior and motivations and look at what is being found to be important in other fields in behavioral science which includes the phenomena mentioned above (Hodgson, 1988).

Classical institutional economics theory is the other point of departure here that may explain human behavior and motivation. This theory emphasizes the influence of institutions in forming the individual and his/her preferences, so according to this theory preferences are not stable. Rather, a change in the institutional setting may change an individual's preference and therefore choice of action. For example, decisions made in the work space compared to in the home will vary due that there are different norms that dominate in the two spheres. Here, the context in which a decision is made within heavily influences what decision the individual will make.

In this model, rationality is not limited to being 'I' orientated, but includes another type of rationality, such as that of 'We'. The 'We' rationality encompasses that one's choices and actions effect the possibilities and outlook of the group (Vatn, 2005). In classical institutional economic theory the institutions in place signal which rationality is appropriate or right to use and are "defined by the institutional setting within which choices are made" (Vatn, 2005:113). They guide an individual in what behavior is expected of them in a given institutional context. If the context promotes individual rationality, the individual is expected to behave in a self

interest manner, much like the neoclassical model predicts. On the other hand, in a context where cooperation is the norm, cooperation is expected regardless of the presence of external reward. Moreover, a change in external rewards, or incentives, should according to this theory not change behavior if the norm holds. Alternatively, the presence of reward may change the type of rationality that is expected and so change behavior.

3.3 Habit

The existence of habit is used as criticisms against neoclassical economic theory and utility function (Jackson, 2005) with that it does not fully appreciate the influence of habits on choice (Hodgson, 1988). Theories of its influence stem from the work in sociology and cognitive psychology, with its advocates including Durkheim (1893), Bargh (1994), Hodgson (1988) and Bourdieu (1990).

Usually, habits are formed after having evaluated the cost and benefits of a given behavior and are a mechanism used to reduce the costs of evaluating the same behavior over and over again. Once a behavior is evaluated to be rational, the habit is created (Jackson, 2005). Hodgson (1988) suggests that even though this is often the case, several habits are formed without conscious deliberation of utility. He states that habits do "not always result from full, conscious choice, as all animal species are born with some capacity to imitate" (Hodgson, 1988: 127). Some habits are formed unconsciously at a young age, where we observe what the 'right' behavior is and copy it, such as eating dinner by the dinner table (Berger & Luckmann, 1967). If a habit is formed unconsciously, one might not recognize the benefit gained from doing the behavior, but one would feel the cost of not adhering to those moral sentiments or breaking the habit (Hodgson, 1988).

In an attempt to tackle the issue of habit, neoclassical economists argue that habit may be considered a benefit as they reduce the need for cognitive effort for a repeated behavior, and that habits are a cost if they are required to be broken. This view is criticized for not being applicable to real life where people generally do not consciously evaluate the cost and benefits of continuing or breaking habits (Hodgson, 1988; Vatn, 2005). Moreover, neoclassical economic theory implies that new information will cause individuals to reconsider the behavior by making conscious complex calculations. Hodgson argues that it is "impossible given the amount and complexity of the information received" (Hodgson, 1988) 126). Nevertheless, to replace a habit with another that is in the best interest of the individuals

often demands distinct cognitive effort, which may pose as a cost higher than the benefit of the new behavior (Verplanken & Faes, 1999, in Jackson, 2005).

3.4 Social norms and values

Cooperation in SDs even when it would be individually rational to not cooperate is a phenomenon which illustrates that there are motivations more important than that of maximizing own utility. For instance, one who does not view recycling as important may be aware that it would be more rational not to spend time and effort sorting waste, but may still recycle because it is the social norm. By adhering to the social norm one may gain external social rewards such as acceptance, respect and admiration (Fehr & Falk, 2002) and internal rewards (which will be further described in section 3.4).

The term social norm has "generated fierce debate in social science" (Jackson, 2005:58). The literature writes about social norms and personal norms. All norms are created and upheld by the collective group, so to clarify, all norms are social. These norms may be internalized, at which point individuals adhere to them regardless of the presence of social control, but until internalization has taken place social control and punishment is required (Vatn, 2005). There are overlapping terms in the literature that should be mentioned here. Personal norms are by some authors called internalized norms or even morals, as morals are argued to be created by the institutions in place, but they are often more deeply embedded than norms (Hodgson, 1988). Meanwhile, non-internalized norms are often referred to as social norms since they demand social sanctions to be effective. Even though various authors and disciplines may embed slightly different meanings within the various terms, the point to be made here is that the terms overlap and thus create confusion for readers of the literature.

One theory that encompasses the influence of personal norms is the norm activation theory by Schwartz (1977). The standpoint of its development was to understand moral behavior, and so it is based on that personal norms are the ultimate determinant of pro-social behavior. Schwartz perceived personal norms as being feelings of strong moral obligation to behave in a pro-social manner (Jackson, 2005). The theory is based on the activation of personal norms by that one is aware of the consequences of the action and ascribes responsibility for it upon oneself. These two factors moderate the relationship between the personal norm and the behavior. For example, the more one is aware of the negative consequences of not recycling and accept personal responsibility, the more one will engage in recycling. On the other end, if

one is not aware of the consequences and do does not recognize their responsibility, one is not likely to recycle.

Values are similar to norms. Schwartz summarizes five features that are agreed upon in the literature with that a "value is a (1) belief **(**2) pertaining to desirable end states or modes of conduct, that (3) transcends specific situations, (4) guides selection or evaluation of behavior, people, and events, and (5) is ordered by importance relative to other values to form a system of value priorities" (Schwartz, 1992:20). According to the ecological value theory proposed by Dunlap and van Liere (1978, in Jackson, 2005) values can be divided into three categories namely egoistic, social and biospheric. Egoistic values correlate strongly with neoclassical economic theory, as they cause choices that are in the interest of the individual, whereas social values stimulate choices that are beneficial for the group as a whole. This incorporates the 'We' rationality within the classical institutional economic theory. Biospheric values focus on valuing the environment in its own right, and can stimulate choices or behaviors that benefit the environment or animals. An individual may hold values orientated towards all three value categories, but the strength of the effect each has on choices or behaviors is influenced by a person's self concept and sense of identity (Verplanken & Holland, 2002:1); "Values were thus found to give meaning to, energize and regulate value congruent behavior, but only if values were cognitively activated and central to the self". Classical institutional economics accepts that values and identity are developed by the institutional setting one is part of, whilst neoclassical economic theory does not recognize the reciprocal relationship between an individual and norms.

3.5 Internal rewards and costs

The influence of emotion on cognitive deliberation may cause people to engage in behaviors even at a cost to themselves (Ostrom, 2000). Ostrom (2000) writes about the effect of adhering to the social norm where she suggests that one may experience 'intrinsic costs' if one fails to adhere to those norms. Such costs may be feelings of guilt, which are self inflicted, or shame, which is a response to that others know one went outside the norm. On the other hand, adhering to the norm promotes positive feelings that act as 'intrinsic rewards' such as satisfaction and a good conscience.

Such influences on choice are not accepted by some neoclassical economists. However, Andreoni (1990) incorporated the influence of such emotional experiences into utility

function by creating the warm glow of giving hypothesis. It revolves around the notion of that giving to others or helping others generates a positive feeling. It arises because one has done something that is socially desirable even though the individual does not benefit from it. The feeling of 'warm glow' acts as an added positive aspect to the behavior. According to this theory, the presence of an external EI should not change the sensation of warm glow. Engaging in behaviors even though one seemingly does not gain from it indicates the existence of altruism. However, due to the fact that one experiences internal reward, some researchers argue that the behavior is in fact selfish. The phenomenon was then termed 'impure altruism' (Andreoni, 1990).

Neoclassical economic theory is criticized for not being able to account for the affective costs and benefits. Responding to that criticism its supporters argue that an economic value can be put upon those affective responses. This is a response viewed by its critics of the theory as "an almost futile and potentially tautological attempt to protect a crumbling theory from its own limitations" (Jackson, 2005:37).

In the face of criticisms of the inability of neoclassical economic theory to explain altruistic behaviors, Frey (1997) suggested that utility function can be expanded. This way the utility function includes internal rewards and costs. With this Frey (1997) adopted the intrinsic motivation theory created by Deci (1971). An intrinsic motivation exists when there is no reward for doing an activity except for the activity itself (Frey & Jegen, 2001). According to this theory, external reward such as an EI may change the utility of a behavior as it can undermine the intrinsic motivations and therefore reduce the total utility. On the other hand, if the EI is seen as symbolic in the sense that it tells a person that one is doing the 'right' thing, it may increase the behavior (Frey, 1997; Deci, 1971; Frey, 1993, in Thøgersen, 1996). On the other hand, if perceived as conditional of the individual's engagement and performance in the desired behavior, then the EI can weaken the intrinsic motivation. In this expanded version of utility, preferences and behaviors are influenced by the institutions and societal processes present in a given setting; a view in line with classical institutional economic theory.

3.6 Potential implications of using economic incentives

According to the neoclassical economic theory, the use of EIs should lead to increased recycling behavior. However, theories based in social psychology suggest that changing the situational set-up, the institutions in place, with an EI to encourage a certain behavior may

cause psychological shifts. Such changes may cause the EI to have a long term negative impact rather than the intended positive impact. Selections of these are presented below.

3.6.1 Reframing

A 'frame' gives meaning to an event, organizes the experience and guides what actions should be taken (Snow et al, 1986, in Thøgersen, 1994). Reframing refers to that the 'schema of interpretation' (Goffman, 1974, in Thøgersen, 1994) is changed, which alters the decision heuristics and potentially the goals behind the behavior. Schwartz (1970) suggested that the involvement of money can shift a behavior or choice from a domain of morality to a domain of economy. In a domain of economy one is inclined to consider egoistic values, or individual utility, more than the benefit of the social group. Here, the 'I' rationality may dominate, which is the only rationality within neoclassical economic theory. Meanwhile, a domain of morality encourages the consideration of social and even biospheric values, depending on whether the individual assumes responsibility for the state of the environment. Here, the 'We' rationality dominates. This rationality is included in the classical institutional economic theory as an alternative to the 'I' rationality in settings where what is best for the social group is pertained to be more important than the individual's interest. An EI may frame the question of engaging a behavior into being a consumer (economy) decision rather than a citizen (moral) decision. When a shift to a consumer frame is made, it implicitly reduces the effects of norms and increases the desire to maximize own utility because the 'I' rationality has been invoked. In this rationality, what is of interest to the individual trumps other interests. Consequently, an EI may convert those who recycle into people who only recycle if it pays.

3.6.2 Crowding out

The motivation crowding effect theory by Frey (1997) assumes that behavior is influenced by both intrinsic and extrinsic motivation. The theory suggests that an EI can activate extrinsic motivations and ***'****crowd in'* new motivations or *'crowd out'***,** or push out and replace, previously existing intrinsic motivations. Crowding in occurs when an individual who previously lacked any motivation to recycle may experience an EI to be motivation to start. In other words, the EI can bring with it a motivation to engage in a behavior that was not there before (Frey and Jegen, 2001). On the other hand, crowding out is when an external EI neglects to consider and include internal motivations that may have been the initially cause of the desired behavior, thereby reduce the behavior (Frey & Jegen, 2001).

There is a disagreement amongst researchers on how crowding out should be interpreted, but there is wide agreement in that it is an occurring phenomena (Vatn, 2009). Several social cognitive psychologists have found evidence for this phenomenon, and the effect has various names: *'The hidden cost of reward', 'Over-justification hypotheses, 'Corruption Effect'* or *'Cognitive Evaluation Theory'* (For account and extensive references, see Frey & Jegen, 2001). This theory has gained support from economists, however it has been criticized that there is not enough empirical evidence to support it. Frey and Jegen (2001) disagree and provide a questionnaire of the studies that support the concept and stipulate that:

"(1) All interventions emanating from outside the person considered, i.e. both positive rewards and regulations accompanied by negative sanctions, may affect intrinsic motivations; (2) External interventions may crowd-*out* or crowd-*in* intrinsic motivation (or leave it unaffected)" (Frey & Jegen, 2001, pg. 5).

Moreover, Frey (1993) suggests that the major determinant is the degree to which a reward acknowledges the actor's intrinsic motivation. If it does, he claims, the award may strengthen the intrinsic motivation. On the other hand, the more the reward is "contingent on task engagement and on the performance desired by the principal" (Frey, 1993;646), the more it is likely to lead to crowding out. Hence, if an incentive is perceived as a token of approval it strengthens and if it is perceived as a payment it weakens the intrinsic motivation.

4 Existing empirical research

The first part of this section will show previous findings on what motivates recycling behavior. Then, a selection of studies that have looked at the use of EIs to motivate increased recycling and its effects will be presented.

4.1 Motives in household recycling

In order for the reader to get a brief introduction into what motivated recycling, Schultz (2002) gives a good overview. Schultz (2002) reviewed most of the previous research done on motivations to recycle and boiled it down to four main motivational factors that will guide the structure of this section:

"(1) The benefits of recycling (e.g. satisfaction of saving natural resources, decreasing landfill use, saving energy),

(2) Personal inconvenience (e.g. no space for bins, no time to prepare materials, hard to move recycle bins to the curb),

(3) External pressures (e.g., friends and neighbors doing it, pressure from friends, pressure from family), and

(4) Financial motives (earn money, decreasing garbage costs)" (Schultz, 2002:72).

In the current study, 'the benefits of recycling' are seen to include internal and external rewards. Just as one may gain internal rewards like a good conscience, one may also gain external social rewards such as acceptance, respect and admiration (Fehr & Falk, 2002). According to a study by Thøgersen (1994) belief about the benefits of recycling influences an individual's choice to recycle. Moreover, one's attitude towards recycling is determined by the expected environmental and public benefits. It has been found that people believe that recycling is one of the most substantial actions they can take to contribute to a better environment, which indicates that motives for recycling can be morally based (Sterner & Bartelings, 1999). A benefit can, as pointed out in Schultz's list, take the form of intrinsic satisfaction and it is often the case that it is experienced by those who recycle (De Young, 1985). Those who are intrinsically motivated are found to be easily discouraged by a PBTB fee system (Berglund, 2003). Furthermore, De Young (1985) found that intrinsic values

correlate strongly with everyday conservation behavior, suggesting that motivations for daily household recycling may be intrinsically based.

Rather than being a motivation, 'personal inconvenience' is viewed in this paper as a hurdle that might outweigh motivations to recycle. Gardner and Stern (2002) found that the effect of social norms is stronger when the behaviors are easy to do and not costly. For example, it would require more effort to recycle of an individual who has a small kitchen and cannot find the required space for the various bags of recyclables. Moreover, it is found that attitudes of environmental concern are predictive of recycling behavior, and that effort is a moderator of that relationship (Schultz & Oskamp, 1996). Biel and Thøgersen (2007) have suggested that cooperative social behavior may be too costly and advise that structural changes should then be made in order to make cooperation more likely. An example of this could be placing recycling stations on a curbside to reduce personal inconvenience.

The third item 'External pressures' are seen to refer to the pressures and effects of social norms, which have not yet been internalized or pressures imposed by authorities. Biel and Thøgersen (2007) concluded that external pressures in the form of perceived social norms are positively correlated with personal norms, which in turn are closely linked with environmentally friendly behavior (Biel & Thøgersen, 2007; Nordlund & Garvill, 2002). Social norms can be a reason for why individuals do not act rationally in the individual sense (Biel & Thøgersen, 2007).

Lastly, 'Financial motives' is interpreted here as referring to the desire to save or earn money. As the use EIs is a focal point of this study, this part will make up a large bulk of the current section.

The US-based literature shows that EIs increases participation in recycling schemes (Katzev & Pardini, 1987). However, the same authors who studied the effectiveness of EIs and commitment in motivating recycling concluded that EIs are inefficient. Their findings were that a group treated with a commitment stimulus recycles just as well as a group treated with commitment and EI stimulus, and that a third group treated with the EI only recycled less than the other two. Hence, the EI alone did not cause more recycling. Nevertheless, financial motives, or motivations surrounding the prospect of money, are found to depend on the amount. Frey (1993, in Thøgersen, 1996) found that some individuals may reduce their engagement in a behavior if the price is seen as *sufficient* for buying the service of others.

Meanwhile, if it is seen as *symbolic* of that one is doing the 'right' thing, then it may increase the behavior.

Thøgersen (1994) conducted a study on the effects of a differentiated garbage fee in Denmark and found that attitude towards the fee is strongly influenced by its perceived effectiveness in reducing waste problems and its equity. Moreover, he concluded that an EI needs to be large in order to have a meaningful increase in recycling. But as the price of the fee rises there is an increase in undesirable consequences (Thøgersen, 1994). This is in contrast to the above findings by Frey (1993) where if the price is high enough to buy the service, it reduces engagement. Hence, there is a fine line between the effects of price.

Bunvoll and Nyborg (2002) found that Norwegians are willing to pay for not having to sort their waste; quite opposite of the notion of saving money. The result may suggest that Norwegians do not want to recycle and want to 'pay' themselves out of the norm based duty. However, it is important to note that in that study the participants knew that the waste they delivered would be sorted and recycled at a later stage. So, the material would still be recycled, but they would be paying for other people to do it for them. In these studies, those who were willing to pay did not necessarily break the norm to recycle because they were still making sure the material got recycled. Hence, the moral obligation of making sure the waste was sorted was not broken in this case. The underlying motivations were still causing recycling behavior, but a different method of making sure waste is sorted was being utilized.

An introduction of an EI was found to discourage those who were previously intrinsically motivated to recycle (Berglund, 2003), lending support for the theory of crowding out. Nevertheless, individuals who were not intrinsically motivated to recycle, but rather felt that it was something 'they had to do' had a positive reaction to the EI. They appreciated the freedom to choose whether they want to recycle or not. With that, it was concluded that moral motives, or intrinsic motives, can be the cause that EI are inefficient. These findings, combined with the suggestion that an EI may cause some to feel that the norm is infrequent and so weakening its effect (Berglund, 2003), imply that EIs are less effective and potentially destructive in areas where norms influence behavior. Weakening norms and morals would leave people to only cooperate and do what is in the best interest of the group only when he or she has an individual gain.

4.2 An initial study and its preliminary results

The conflicts between the above theories and empirical findings demonstrate a need for a deeper understanding of the motivations to recycle, factors underlying and influencing those motivations as well as the effect of EIs on recycling and motivations. This motivated the onset of the project 'Environmental Policy and Human Action' financed by the Norwegian Research Council (Forskningsrådet) that the current study is part of. The project's main goal is "*To enhance our knowledge about what characterizes motivations when choices have environmental effects by a) comparing the capacity of the individual utility maximization model and an institutional model to explain behavior in environmental social dilemmas, and b) identifying implications thereof for environmental policy*" with a sub-goal "*To produce new insights about what motivates environmental action through performing a set of empirical studies where respectively external rewards and institutional contexts vary systematically".*

To meet these goals the project was structured to gather both quantitative and qualitative data in two institutional settings. The pro-environmental behavior of choice is recycling, and the project compares two institutional settings; one with an EI in place and one with a flat fee (no EIs). The setting with an EI present is a pay-by-the-bag (PBTB) fee system in three municipalities of study, whereas the one without is a standard flat fee system in three other municipalities. Previous to the current study, Marit Heller created, distributed and analyzed a questionnaire sent out to all six municipalities (please see appendix I for copy), providing all the quantitative data required. The purpose of the current study is to provide the *qualitative* data from the municipalities with a PBTB fee system. Meanwhile, the qualitative data from the municipalities with a flat fee system will be gathered by Marit Heller.

The quantitative data was crucial in creating the interview guide for the current study and is used to accompany the qualitative data, so the methods used by Marit Heller can be viewed in Appendix I.

4.2.1 The preliminary results

The results of the initial study guided the current study and so it is relevant for the reader who wants to understand how the research questions came about. The study is still ongoing so these are the preliminary results that were found when I started this qualitative study. Also, this section will give the reader an overview of the various variables that influence recycling degree and how an EI may influence the effect of those variables. Note that the data used here belongs to Marit Heller, however the below presentation and interpretations are made by the current author.

A t-test was done to compare the recycling degree in the PBTB fee system sample (N = 264) with the recycling degree in the flat fee system sample (N = 287). The recycling degree was self reported in the questionnaire, where respondents chose the option that best described their recycling degree. The question was 'How much of the household's waste that is collected do you usually recycle?' The scale was from 1 to 6 where 1 is that one recycles 'Nothing', 2 = 'Some', 3 = 'Quite a bit', 4 = 'Most of it', 5 = 'Almost everything' and 6 = 'Everything'. There was a significant difference between the recycling degree in the PBTB fee system sample (Mean = 4.72, Standard deviation = 0,98) and the recycling degree in the flat fee sample (Mean = 4.98, Standard deviation = 0,94) conditions; $t(554) = 3.23$, $p = 0.001$. These results indicate that the respondents in municipalities with the flat fee system recycle significantly more than respondents in municipalities with a PBTB fee system.

The question is then why do households with a PBTB fee system recycle less than those in the flat fee systems? In order to answer this we would need to estimate the relationships between all the variables expected to predict recycling degree. The first SEM analysis, which will be presented below, shows the significant variables for the SEM model for the respondents from municipalities with a flat fee system and municipalities with a PBTB fee system. The second SEM analysis, which will also be shown below, displays the same for respondents in the municipalities with the PBTB fee system only. Comparing the differences in these two SEM models will indicate whether the EI caused any changes in the relationships between the variables.

Table 1 describes (below) the content of each variable and the scale of measurement. These variables were put together using factor analysis and our interpretation of meaning behind each item, except for the fee system and recycling degree. The fee system variable consists of the flat fee system and the PBTB fee system, where numbers 1 and 2 represent each, respectively. Meanwhile, recycling degree is self reported by participants from a scale between 1 (Nothing) and 6 (Everything). Variables 2 to 5 were initially clustered together, but seeing how they are different in nature they were separated to create more focused and representative variables.

Table 1: An overview of the questionnaire items within each variable and the measurement scale used for each

	Variable	**Item**	**Measurement**
1	Fee system	Flat fee system or PBTB fee system	1 or 2
2	Contribute environment	- I recycle to contribute to the environment	Likert scale 1-5*
3	Pro-recycling loved ones	- those I cherish think I should recycle - those I cherish recycle	Likert scale 1-5*
4	Self perception	- I recycle because I want to see myself as responsible - I should do what I think others should do	Likert scale 1-5*
5	Duty	- I see it as my duty to recycle	Likert scale 1-5*
6	Positive feelings	- a feeling of satisfaction - good conscience - a feeling of pride - a feeling of independence	Likert scale 1-5*
7	Negative feelings	- gives me a feeling of being controlled - I experience recycling as forced	Likert scale 1-5*
8	Habit	- for me recycling of household waste is a habit - I find it easy to sort waste in my home	Likert scale 1-5*
9	Economic consideration	- I recycle waste because it is economically sensible - I recycle to reduce the number of deliveries of unsorted waste	Likert scale 1-5*
10	Recycling degree	- How much do you usually recycle of what is collected at your household?	Likert scale 1-6**

*(*Likert scale 1-5: 1 = Completely disagree, 5 = Completely agree. **Likert scale 1-6: 1 = nothing, 2 = Some, 3 = Quite a bit, 4 = Most of it, 5 = Almost everything, 6 = Everything)*

4.2.1.1 Variables influencing recycling in all municipalities with both fee systems

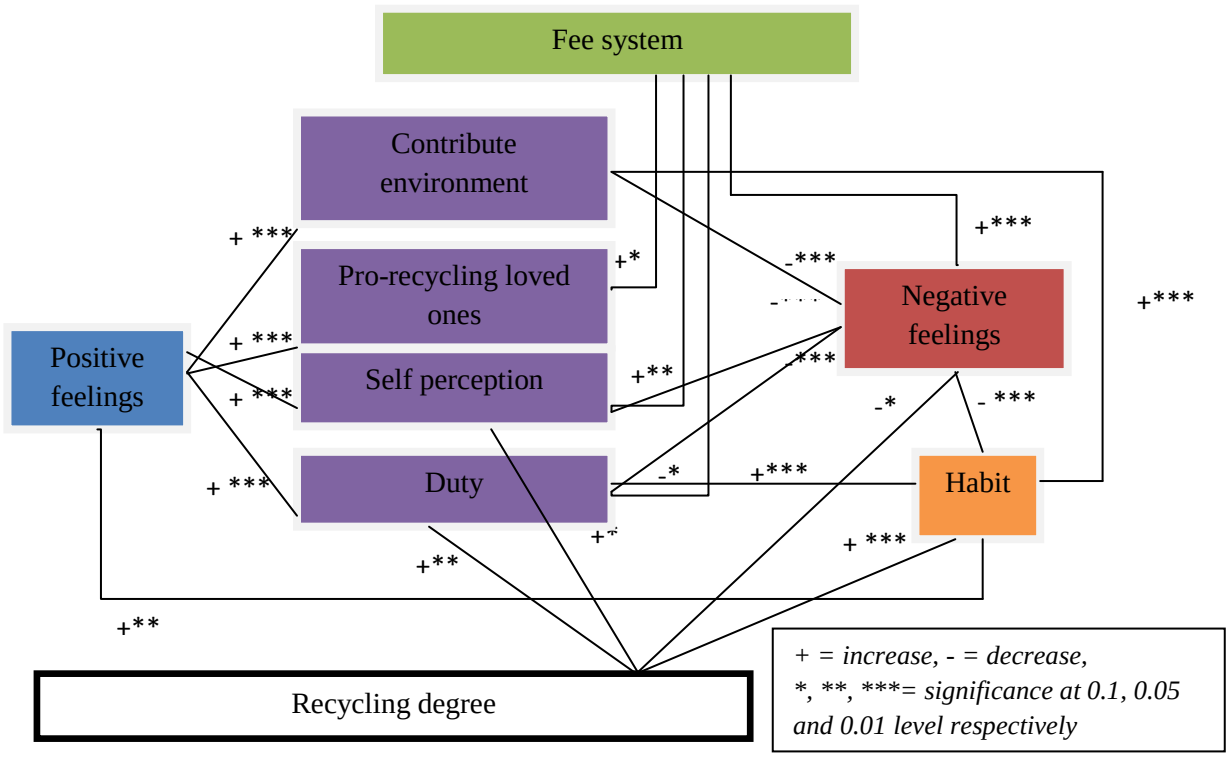

Figure 1: Relationship between fee system and degree of recycling in all six municipalities. Source: The questionnaires

The significant relationships between variables that are connected to the 'Fee system' and 'Recycling degree' are illustrated in figure 1. There were other variables that were found to significantly influence those shown above, but in order to limit the scope of the study and because the current study is not going to address those socio economic factors, I chose to leave them out as this is not a socio-economic study and these variables will likely be addressed by Marit Heller. These variables were age, income, gender, education and whether one was an optimist with regard to the current environmental situation or a pessimist. While being aware that these variables are of particular interest to policy makers, this study is focused on motivations and the influences of the EI.

The causal direction of the relationships is not certain; however one can attempt to reason how the variables might influence one another. The 'Fee system' has a direct positive relationship with 'Pro-recycling loved ones', 'Self perception' and 'Negative feelings' meaning that there is an increased importance of the motivation that your loved ones are pro recycling, and to maintain a good self perception. Also, the presence of the EI increases the occurrence of negative feelings. Meanwhile, 'Fee system' has a negative relationship with

‘Duty’, indicating that the EI reduces sense of duty to recycle. Moreover ‘Negative feelings’ has a strong negative relationship with ‘Duty’, ‘Self perception’ and ‘Contribute environment’ indicating that experiencing negative feelings reduces sense of duty and the importance of self perception. ‘Duty’ and ‘Self perception’ increase recycling degree, so when the EI increases negative feelings, it reduces sense of duty and self perception motivations which then reduce recycling degree. Furthermore, ‘Negative feelings’ has a direct negative effect on ‘Recycling degree’. ‘Habit’ is the final variable that directly connects with ‘Recycling degree’ and it has a significant positive effect. ‘Positive feelings’ has a strong positive relationship to ‘Contribute environment’, ‘Pro-recycling loved ones’, ‘Self perception’, ‘Duty’ and ‘Habit’. As the latter three variables in turn increase recycling degree, positive feelings are likely to play an important part in recycling behavior. Meanwhile, ‘Negative feelings’ has strong negative relationships with the same variables except ‘Pro recycling loved ones’. The purple variables can be called norm based variables. The explanation of their relationship with recycling degree and positive feelings is most likely that adhering to the norm based variables cause positive feelings and encourages pro-social behavior. In addition to its relationship with feelings, ‘Habit’ has a positive relationship with ‘Contribute environment’ and ’Duty’. This indicates that being in the habit may make one more involved in recycling issues, in which case crowding in may have occurred, and experience it as a duty. Alternatively, wanting to contribute to the environment and feeling a sense of duty causes recycling to become a strong habit. The qualitative data that the current study will provide might shed light on what the causal direction of the relationships might be.

The variable ‘Contribute to the environment’ was not directly related to recycling degree. This was an unexpected result as previous studies have found the environment to be the primary motivation to recycle. Nevertheless, it could be that its effect takes place via positive feelings and branches out to the other variables through there. So, consideration for the environment does not necessarily reflect how much one recycle, but its positive relationship with habit entails that consideration for the environment plays an important role in developing the habit of recycling

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4.2.1.2 Variables influencing recycling in the pay-by-the-bag fee system municipalities

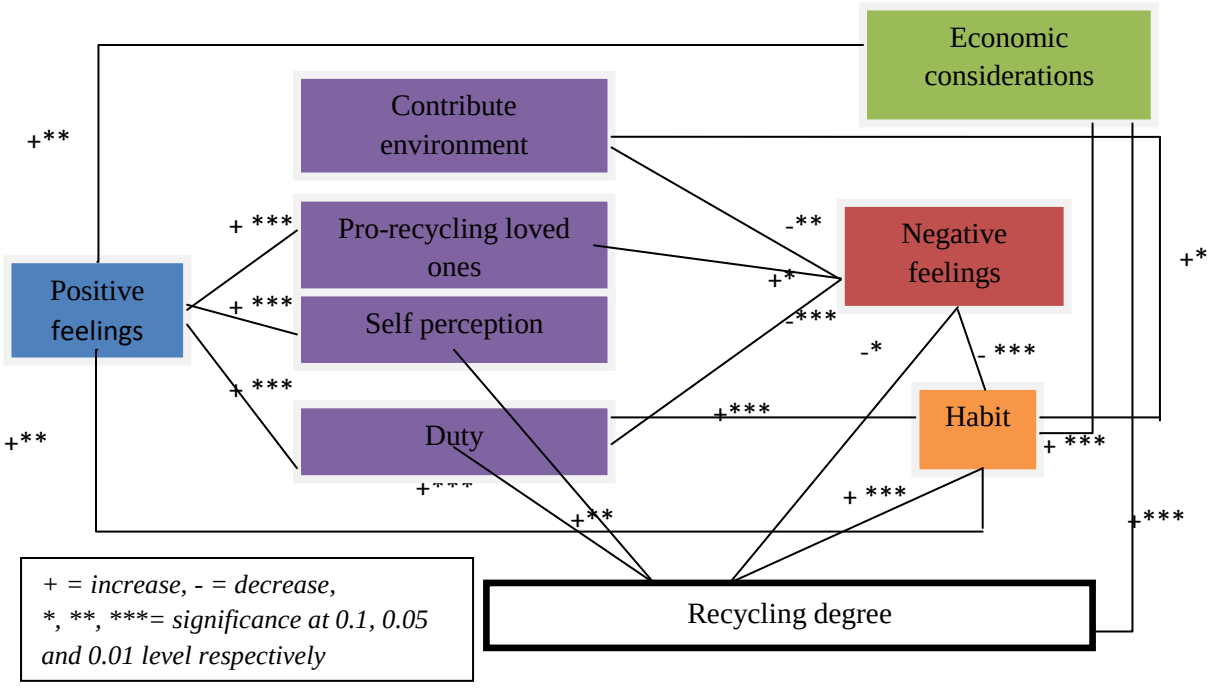

*Figure 2: Variables found to be directly or indirectly significant to the recycling degree in municipalities with the pay-by-the-bag fee system using data from the initial questionnaire. (+ = increase, - = decrease, *, **, ***= significance at 0.1, 0.05 and 0.01 level respectively).*

In the SEM analysis for the municipalities using an EI only, 'Economic consideration' naturally came forward as a significant variable. It did not come up in the earlier SEM analysis, because it was not relevant for respondents in the municipalities with a flat fee system. Here, it has a significant and direct relationship with recycling degree, indicating that by wanting to save money or reduce number of deliveries one will increase recycling efforts. Moreover, economic considerations have a positive relationship with 'Positive feelings' and 'Habit', both of which directly increases recycling degree. So, economic considerations stimulate positive feelings and make recycling into a stronger habit. 'Positive feelings' further has positive relationships with 'Pro-recycling loved ones', 'Self perception' and 'Duty'. Whether it is the latter three variables that cause positive feelings or the other way around, is uncertain. 'Negative feelings' has negative relationships with 'Habit', 'Duty' and 'Contribute recycling'. Hence, negative feelings reduce recycling degree not only directly, but also indirectly through reducing habit and sense of duty. As in the previous SEM analysis, 'Negative feelings' did not have a significant relationship with 'Self perception' which it did in the previous SEM analysis. These results indicate that the EI reduces sense of duty,

people's thoughts of that one *should* recycle (encompassed in the 'Self perception' variable) and experience of positive feelings due to fulfilling the motivation of contributing to the environment. Surprisingly, 'Negative feelings' has a positive relationship to 'Pro-recycling loved ones', with that the more negative feelings you have the more you are influenced by that your loves ones are pro recycling Though, as 'Negative feelings' entail a feeling of force, it could be that those cherished people are the source the individual feels force from. Moreover, 'Negative feelings' has a negative relationship to 'Contribute environment'. Either, experiencing negative feelings reduces the strength of the motivation to contribute to improve the environment, or, those who are motivated by the environment experience less negative feelings of force and control. 'Contribute environment' further has a positive relationship to 'Habit', indicating an importance in care for the environment in recycling, though it is not a highly significant relationship. 'Habit' also has a positive relationship to 'Positive feelings', 'Duty', 'Economic considerations' and 'Recycling degree'. It could be that a good habit of recycling promotes positive feelings which strengthen the habit further resulting in increased recycling degree. Sense of duty and economic considerations may play part in developing and maintaining the habit, increasing recycling degree. 'Moreover, 'Habit' has a negative relationship with 'Negative feelings', indicating that those who feel controlled or forced to recycle do not recycle as regularly as those who do not feel force and control. Hence, the amount one recycles is likely larger in those who feel a sense of duty to recycle, consider their economic situation, experience positive feelings, want to contribute to improving the environment and link recycling to their self perception. Lastly, 'Positive feelings' do not have a significant relationship with 'Contribute environment', which was the case in the previous SEM analysis. This indicates that the EI eliminated the potentially reciprocal relationship between positive feelings and wanting to contribute to the environment. Perhaps the EI crowded out internal motivations which previously promoted positive feelings, such as a warm glow, which may have stemmed from care for the environment.

5 Method

5.1 Research Strategy

This qualitative study holds the view of both inductive and deductive theory. The initial study has the influence of deductive theory, yet the aim was to get a deeper understanding of the motives surrounding recycling and the effects of an EI, so it was open to having theories emerge from the data. The information gained from the initial study was used to choose themes to focus on, but it did not create hypotheses that this study is done to test. Therefore, the general approach I used to the relationship between theory and the qualitative research is slightly more inductive than deductive. There were several themes that were found to possibly be of importance, but the interviews were done without being clear of what would emerge to be the main themes. At the same time though, the purpose of this study is not to generate hypotheses either, it is to understand what lies behind the findings of the initial study and the effects of an EI. The lines between the two approaches are not clear-cut (Bryman, 2008), but I did not conduct this study to look to confirm or falsify a particular hypothesis.

5.1.1 Epistemological and ontological considerations

The epistemological viewpoint taken is that of interpretivism, where the study of people and their institutions is viewed as completely different from natural sciences (Bryman, 2008). As is characteristic of this view, this study wishes to *understand* why people make the choices that they do and how various variables affect those choices. It is not limited to the goal of wanting to provide explanations, which is the nature of natural sciences. Rather it attempts to provide explanations that create an overall understanding.

The ontological position in this study is constructionism, which emphasizes that social structures and phenomena are built and influenced by the social agents in place.

5.2 Research design

Even though the initial study influenced the starting point of the current study, this is not a mixed methods study. The initial study was quantitative with a cross sectional research design as it is a study of several households in 6 municipalities at a single point in time. The questionnaire makes the data quantifiable which allows one to find patterns of association.

Meanwhile, the current qualitative study also has a cross-sectional design, which is fairly typical for research using semi-structured interviews that are viewed as method that is viewed as ecologically valid (Bryman, 2008). This design, compared to longitudinal designs, relies on the ability of the participants to remember the factors that influenced them in the past that brought them to become who they are today.

5.3 Data collection

There are several sources of information used in this study. Interviews with representatives of the households make up the core of this study. But to get a wholesome understanding of how and why the current system of recycling came about, I also interviewed representatives of the municipalities and respective of the renovation companies. Documents were also used to fill informational gaps, or to get additional information. The data collection methods for the different sources of information will be described below, followed by the sampling methods.

5.3.1 The semi-structured, in-depth interviews with household representatives

The purpose of semi-structured, in-depth interviews was to get deeper into the motivations and thoughts behind the responses given in the questionnaire. The benefits of this type of interview are that the questions are written in a way that allows the interviewee some flexibility in how to respond. Another benefit is that the interviewer is able to pick up on matters that the interviewee introduces and add questions. The negative aspect of a semi-structured interview is that the interviewee may then get off track, at which point the interviewer must subtly guide the interviewee back to the original question. This may cause the interview to take more time than a structured interview, but gives space for the interviewees to introduce new issues themselves. Diving into those issues enables discoveries that limited interviews do not.

The interview guide was written by Marit Heller and me. Inspiration came from Kvale's (1996) different types of questions; introducing questions, follow-up questions, probing questions, specifying questions, direct questions, indirect questions, structuring questions, interpreting questions and using silence as a way to allow the participant to expand on their answer. The questions in the interview guide are open ended and allow me to add questions during the interview (Please see appendix III for copy of interview guide). The main reason for this is that it is important to get an understanding of what is most important to the

participant. The participant might repeatedly go back to one issue, which indicates that it is an issue the individual is concerned about with regard to recycling.

The interviews took place in the participant's homes, with the exception of two participants; one was interviewed at a café, another at his workplace canteen due to their wishes. Conducting the interview in their homes was the aim since it is an environment where we would not be easily disturbed or distracted. In addition, the home is a comfortable and a safe environment that would hopefully make the participants feel at ease. Also, it was a matter of making the appointment as convenient as possible for the participants to avoid cancellations. Nevertheless, some may be uncomfortable having strangers in their house, so I said to the participants that seemed unsure that we could also meet elsewhere, but that the standard of the project was to go to people's home. They were asked what time they preferred, and I tried to accommodate their wishes to my best ability considering the appointments I had already made.

I started the interviews by reminding the participant what the research was about. I did not have a consent form as they had already given their consent in the questionnaire, in which they agreed to an interview at a later point in time.

During the interview I used the probing technique and echo technique to make sure I understood the participant correctly whenever there was lack of clarity and to allow the participant time to think and perhaps elaborate further. To avoid 'cuing' my participants on what I wanted to hear, I took notes continuously and avoided responding in ways that may seem favorable to some information they give.

The only equipment required for the collection of data, other than the interview guide, was a recorder and notepad. The recorder used in every interview was an iphone.

5.3.2 The structured interview with municipality representatives

The interest in the municipality was to ask whether implementing a PBTB fee system was the decision of the municipality, or the renovation company. If the latter, then whether the municipality had a choice in the matter. Also, it was to gain information on what the waste handling system was. As I knew that what I wanted to know were facts and not matters of opinion, I developed a structured interview (Please see appendix IV for copy). In addition to asking questions, I requested a document where the decision to employ the current renovation

company was recorded. Doing so, I would get information surrounding why it was chosen at that point in time.

Due to limited time in the field and the fact that I did not have many questions, I decided to do the interview over the phone. I asked the representatives if they had available time to answer some questions, one of which requested to receive the questions by email.

5.3.3 The semi-structured interview with renovation company representatives

The renovation companies were interviewed because they hold the information on the rationale and practical information about the household waste regime. In addition, I wanted information about the company and their opinion of the regime and whether they have received any feedback from the population. Since this interview is about gaining as much information as possible, a semi-structured interview was seen as optimal. A list of questions was prepared before the interview and allowed for follow up questions (Please see appendix V for copy).

5.3.4 Documents as a source of data

The two types of documents used for data in this study are virtual documents in the form of websites and copies of board minutes of meetings. The websites belongs to the municipalities and renovation companies, and the information there is considered valid and reliable. The same goes for the municipalities' board minutes of meeting documents.

5.4 Sampling

The selection of interview participants in households is non-random as they were selected from the questionnaire sample from the PBTB fee system municipalities; Askøy, Os and Kristiansand. In the questionnaire the participants were asked if they were willing to be contacted at a later point in time for a follow up interview. It was also stated that the interview would take about 45 minutes and that they would be contacted by phone beforehand. The first sampling step was to eliminate those who did not agree to being interviewed. Out of the 267 participants, only 73 said yes to be interviewed.

From here, Marit Heller and I stratified the choice of participants to ensure that we had a representative sample. We did this with the aim of getting an equal number of males and females and individuals in different age groups. Also, to get people with different recycling degrees (the participants' self reported recycling degree that they gave in the questionnaire)

ranging from 1 – 5, where 1 is that they recycle 'nothing' and 5 is that they recycle 'everything'. Note, there were no candidates with a recycling degree below level 3 (recycle 'some'), and there were only 5 participants with a level 3 so we decided to call all those 5 candidates.

At this point, I called the 30 candidates we had chosen. Once contact was established my introduction was guided by the following text:

"Hi, my name is Vanessa, I am a master student calling you with regards to a questionnaire you filled out about recycling of household waste last year, where you said that you were willing to be interviewed. It is for a project that the Norwegian research Council is financing. Are you still willing to be interviewed? It will only take about 30-60 minutes and I come to your house. I am coming to *(Os, Askøy, Kristiansand)* on *(date)* and am staying till *(date).* Do you have any available time for me to interview you?"

The response rate of those who were willing to be interviewed was 23.5%. This is a very low response rate which forces one to question the representativeness of the sample. Of those I called, several said no to being interviewed after all. They often did not give a reason but those who did said they did not have the time. On that note, there were also a few of participants who I had set an appointment with who then cancelled only days before the interview. To make up for the lost participants, I had to call whoever was left on the short list of participants in the municipality who was willing to be interviewed. As I reached my goal of 30 participants, there was only one participant left who I had not yet called. I decided to make an appointment with the last participant, in case another one cancelled. Nobody cancelled after this time, so I ended up with one participant extra. So, out of an initial sample size at the questionnaire stage of 267 participants, only 31 agreed to and went through an interview. The participant distribution was then 10 in Kristiansand 9 in Os and 12 in Askøy.

Table 2: Attributes of the interview participants and average in Norway.

Attribute	My sample	Norway
Gender		
Male	48,40 %	49,95 %
Female	51,60 %	50,05 %
Education		
University degree	54,80 %	29,10 %
High school	38,70 %	42,30 %
Middle school	3,20 %	28,60 %
Age (years)		
30-39	25,80 %	13,60 %
40-49	29,00 %	14,50 %
50-59	19,40 %	12,60 %
60-69	19,40 %	10,70 %
70-79	6,40 %	6,00 %

Source: The questionnaire from the initial study and SSB[1,3,4]

In terms of gender, my sample is representative of the national distribution of approximately 50% for each sex.

The education level of my sample on the other hand is not representative. I clearly have a higher educated population as 54,8% hold a university degree or higher, while the national average is 29,1%. Those who did not finish high school are not well represented, as 3,2% of my sample only finished middle school, whilst national average is 28,6%. One possible cause is that those who are higher educated realize the importance of studies being conducted and our need for participants. A second possibility is a connection between education and recycling degree in the sense that those who do not recycle are potentially those with lower education and are less willing to fill out the initial questionnaire and agree to an interview.

In terms of age, the entire sample is above the age of 30 which immediately excludes representation of those considered ‘young adults’, which could have an effect on the findings of the study. The percentages for the statistics of the Norwegian population do not make 100% as the ages below 30 years are excluded. Nevertheless, the distribution of participants in the age groups above 30 years is between 10-15% in all the age groups, except for the 70-79 years group, which is 6%.

To see if the interview sample was representative of the questionnaire sample in terms of recycling degree, an independent samples t-test was conducted to compare recycling degree in the PBTB fee system questionnaire sample (N=264) with the interview sample (N=31). The recycling degree was self reported in the questionnaire, where respondents chose the option that described their recycling degree best. The question was 'How much of the household's waste that is collected do you usually recycle?' The scale was from 1 to 6 where 1 is that one recycles 'Nothing', 2 = 'Some', 3 = 'Quite a bit', 4 = 'Most of it', 5 = 'Almost everything' and 6 = 'Everything'. There was not a significant difference between the total PBTB fee system sample (M=4.72, SD=0.98) and the interview sample (M=4.97, SD=0.95) conditions; t(296)=1.34, p=0.2. These results indicate that my interview sample is representative of households in the study areas in terms of recycling degree.

With regard to finding representatives of the municipality authorities and renovation companies, I called their offices and explained that I was a Masters student doing my thesis on recycling. From there, I was lead to the 'right' person to talk to.

5.5 Data analysis

This study will conduct a descriptive analysis of the interviews, as 30 participants are not sufficient to use statistical analysis to generalize findings. To repeat, the purpose of the study is gain an understanding of the reasons why people recycle, as well as how and why the EI had the effect it did on each individual. The analysis is therefore based on keeping an open mind in a search for patterns and potential causes of certain choices and behaviors; while considering past studies and theories that gave ideas for what to expect.

5.5.1 Coding

A central process in grounded theory is coding, which I did using the software NVivo recommended by Bryman (2008). Within this, I practiced both open coding and axial coding. Open coding is the procedure of developing categories, whilst axial coding is the procedure of exploring relationships between categories. Axial coding enables me to model the relationships between motivations, EIs and behavior; central phenomena; and outcomes (Bryman, 2008). While transcribing, I coded everything knowing I would have to come back to some of them later to refine the categories. Once I had gone through all the interviews, I came to see patterns and concepts I did not earlier on. At this point, I systematically went back to the temporary categories and made codes that were more representative of what they

actually meant. Once this is done, NVivo allows for analysis of the relationships between codes.

5.5.2 Statistical analyses used

A t-test was used to assess whether the means of the two different groups were statistically different. Such a test is often used, as in this case, to test whether a sample is representative of a population. Its assumptions are that the two groups have approximately equal variance and that the two groups are independent of each other. The test was done using Microsoft Excel.

5.5.3 Trustworthiness

It has been suggested that qualitative research should be evaluated differently than quantitative research in terms of validity and reliability. Trustworthiness is a criteria proposed by Lincoln and Guba (1985, in Bryman, 2004) and is used here as the criteria for assessing this qualitative study.

5.5.3.1Credibility

The general problem of coding is that it loses the contexts of which something was said. Moreover, thematic coding does not consider the narrative flow of what the participants say. However, the responses will be coded according to what question they answered where context is important so credibility is maintained.

5.5.3.2 Transferability

This study looks into the influence of EI on recycling motivations and behaviors, but is not limited to the act of recycling. This study will contribute to the knowledge on the effect of EIs on people's willingness to engage in environmental behaviors that may otherwise be voluntary. There could be factors that are characteristic of recycling that influence an effect, such as the availability of recycling stations. However, even with this in mind, the findings of this study can be transferred to several areas of environmental policy where EIs are used or considered for use.

5.5.3.3 Dependability

Results of this study are likely to apply at other times, given a consideration for the institutions in place at a given time. This is because this study is about evaluating how various variables influence motivations and behaviors, so one should be able to use the findings to explain or predict behaviors elsewhere. Nevertheless, since I am interviewing only 30 people, who may all have unique stories, it is not possible to be confident that my sample is representative of how 'all' individuals are motivated and why they make the behavioral

choices they do. However, it will give an indication of influences of the various variables, which will be applicable to other people.

5.5.3.4 Confirmability

While acknowledging that this study cannot be completely free of subjectivity, I believe it to be very low as the methodological precautions are being taken. Moreover, I do not hold a set of beliefs or opinions on the matter making me open to the findings and conclusions that will appear.

5.5.4 Limitations

First of all, those who do not recycle or do not recycle to a level that is socially acceptable are not likely to respond to the initial questionnaire, much less agree to an interview on recycling. Hence, those who do not already recycle and perhaps were not motivated by the EI are excluded at this point of the study. Since my sample is taken from those in the questionnaire who said 'yes' to be interviewed my study is inherently affected by such limitations of questionnaires.

Secondly, those who agree to an interview are likely to be individuals who hold stronger social values and are willing to 'give back to society' by contributing to science than those who do not agree. Meanwhile, those with more egoistic traits have a more difficult time agreeing to donate their time and energy. Another issue to consider is that those who do not recycle may not see the point of filling out the questionnaire or being interviewed about recycling, which may cause a low representation of this group of individuals. These could be people who care for the environment but do not recycle, or people who do not care about either. It could be that those who do not sort their waste have valid reasons for not doing so, such as having little time to devote to recycling because of e.g. children. Interviews with such individuals would have been valuable to obtain, but it is not possible to get in-depth interviews if the individual is not willing. These issues must be considered when making any conclusions about the data. In afterthought, a method that could minimize exclusion of such people might have been to show up at the door of those who had said 'yes' to being interviewed in the questionnaire, and asked right then and there if they had an hour to spare. However, they might actually be preoccupied at that time and the method might make the participants feel forced to say yes and put a negative tone to the interview.

A third limitation of this study is that we are looking solely at detached houses. While it gives the study focus, the results may not reflect how residents in, for example, apartments think or

behave in terms of recycling. The main reason why it was decided to research those in houses is that there were a large number of them in each municipality; there are more people living in houses in these municipalities than in apartments. In addition, there are fewer practical limitations in houses compared with apartments, such as small kitchens. Also, residents in apartments usually pay a monthly fee that includes communal fees and such. Hence, residents in apartments do not receive individual invoices from the renovation companies and are therefore less likely to be aware of an EI, much less be influenced by it.

Lastly, there is not any hard data on how the participants thought and behaved with regards to recycling before the EI was implemented. Therefore, the study relies on the memory of the participants, which is not necessarily always correct.

6 Results and analysis

The first part of this chapter describes the municipalities and their respective renovation systems. Information gained from the interviews with representatives from the renovation companies as well as representatives from the municipalities is utilized here. By interviewing the former, I got information on how the collection of household waste system works, and the reasoning behind the introduction of the EI. By interviewing the latter I was able to ask why the municipality chose the renovation company they did and whether they had any choice in introducing the EI. Information from the interviews was supplemented with data from websites or by contacting the renovation company for follow up questions.

The second part of this chapter focuses on data from the interviews, and is supplemented by data derived from the questionnaires. Quotes from the interviews are given throughout which gives insight into the participants reasoning and meaning around their responses.

6.1 Municipalities of study

The municipalities of study are those chosen for the large project Environmental Policy and Human Action. They were chosen on the basis of availability of data and that there were a large number of detaches households in each of them.

Os and Askøy are located on the Norwegian west coast, in Hordaland. In 2012 the population in Askøy reached 26,210 people (SSB[2], 2012), while the population in Os consists of 2,040 people (SSB[6], 2012). Both municipalities are situated with close proximity to Bergen city.

Kristiansand is on the south coast of Norway in Vest-Agder and its population reached 83,243 people in 2012 (SSB[5], 2012). Unlike the other two municipalities, Kristiansand is a city.

Figure 3: The location of Os, Askøy and Kristiansand.

6.2 The household renovation systems

6.2.1 Askøy and Os

The renovation company BIR is a stock company owned by nine municipalities, including Askøy and Os, and is responsible for waste management in the municipalities that own it. The share of each municipality is determined by its population size. It was originally the

renovation company for the city of Bergen. Municipalities surrounding Bergen decided to join the company in order to meet new Norwegian laws and regulations for handling waste more easily and cost efficiently (Municipal board, Askøy, 1994: Municipal board, 1994, Os). The new requirements to recycle and reuse would call for technical instruments which would be more cost efficient to buy with larger capacities (Municipal board, Askøy, 1994). The representative from Askøy stated that they joined BIR as it never had a renovation department, so it was a natural choice to join BIR to cover those services. Similarly, the representative from Os said the decision to use BIR was about joining an inter-municipal system. In addition to the collection of household waste, BIR is also responsible for local renovation stations in each municipality. The municipalities are still in charge of making the decisions about what materials should be recycled, when and how often invoices should be sent out.

In Askøy and Os there are three waste categories that are collected from the households, namely paper, unsorted waste and plastic. For paper and unsorted waste there are two bins allocated to each households, while plastic is delivered for collection in large plastic bags available in stores or renovation stations. The collection of paper and plastic takes place once a month and is included in the standard fee, upon which additional costs for each collection of unsorted waste is added. Paper was collected from all households under the management of BIR by the year 1997, whilst the collection of plastic was introduced in September 2008. Meanwhile, unsorted waste can be delivered every week if desirable and is registered by a chip that is attached to the bin. This enables a count of deliveries which are to be paid for and is added to the standard fee. Each delivery of unsorted waste costs about NOK 34 for a 140 liter bin. Moreover, unsorted waste must be delivered at least once a month due to hygiene regulations. Glass, metal and textiles can be delivered to containers which are usually located nearby shops and at curbsides. Other materials such as electronics and light bulbs can be delivered to certain shops or the local renovation station.

The EI was implemented in January 2009. The reasoning behind the decision to use an EI was to adhere to the policy of ‘polluters pay’ and to give households an opportunity to influence their own renovation costs. In addition, the incentive is meant to act as a reward for those who recycle. However, the price has increased. But if one considers the price index, the price has actually gone down. A standard subscription cost 2087,5 NOK from 2001 to 2008. Once the EI was introduced the average price for households in Os and Askøy was 2175,33 NOK and 2206,56 NOK, respectively, in 2009. These numbers have increased to 2291,05 NOK and

2376,78 NOK in 2011. Considers the price index, the price in 2008, before the EI was implemented, would in 2011 have been 2211.29NOK. So, the price in 2011 is higher than it was before the EI was introduced, even when taking the price index into account. The household residents may not consider the price index at all when they see the price go up year by year, so they might view the increase to be much larger than it actually is when considering the price index.

As the EI got introduced, the local BIR renovation stations started to demand payment for taking in recyclable materials. 25% of the costs of running the BIR renovation stations used to be covered by the annual fee, but now that the set fees are at a 'minimum', those who have the need to deliver waste there have to cover those 25%.

BIR states that each municipality had the option to choose not to implement the incentive; however a representative from Askøy said that they did not have a choice if they wanted to remain part of BIR. Hence, either the option was not communicated well, or the 'option' was to find another company to handle their waste. Meanwhile, Bergen, the largest shareholder, chose not to implement it. According to BIR, the reason Bergen did not implement the incentive was that the city streets are too narrow and to allow for multiple trash cans outside the apartments and for the collection trucks to navigate. This is why they are currently installing a sublevel pipe system based on vacuum technology that will 'suck' waste from sorting stations to be placed around the city.

There was a period of time BIR sent waste to incinerators in Sweden due to the fact that Norway did not have the capacity to take in all the waste. Sweden lacked waste for their incinerators so the price to deliver the waste there was low. With two incinerators in the Bergen area, BIR does not deliver waste to Sweden any longer.

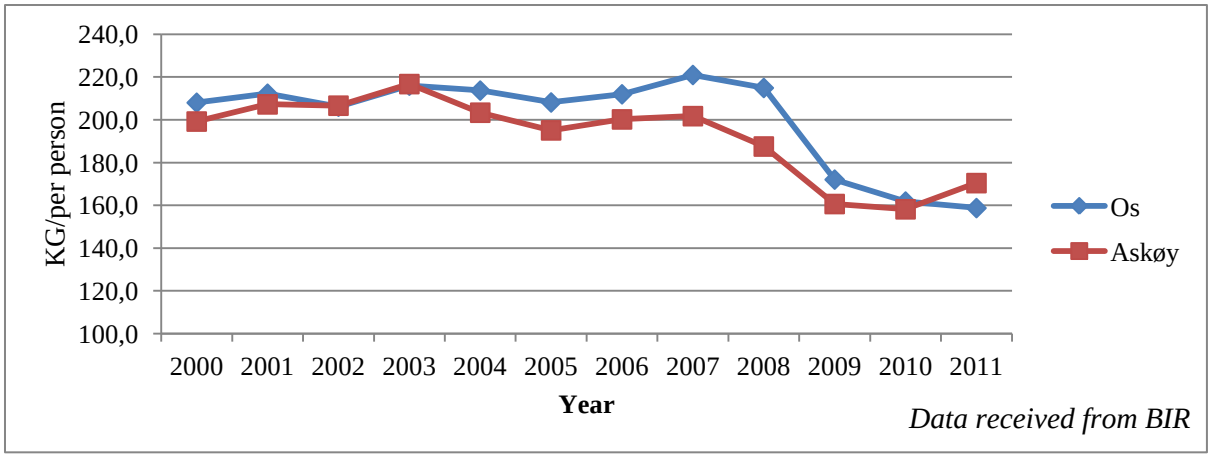

Figure 4: Unsorted waste collected in kg/per person from all households in Os and Askøy, 2000-2011.

In analyzing reduction in waste there are two main methods to go about it; one is to look at the amount of waste, and the other is to look at the reduction while considering factors such as economic growth (The Norwegian Ministry of Environment, 2002). Figure 4 and 5 (below) shows the absolute amount of unsorted waste is considered, not the relative amount where economic growth is considered. Therefore, while reading these results one must keep in mind that due to the economic growth in Norway the total amounts of waste increased by 34% between 1995 to 2010 (Miljøstatus, 2012). Hence, the decrease in unsorted waste is in reality steeper if one was to take into consideration the annual increase.

Figure 4 illustrates that there was a drop in the amount of weight of unsorted waste per person from 2008 to 2009, the latter being the year the EI was implemented. In Os the drop was of 42,8kg and continued to go down by 13,3kg by 2011. In Askøy, the drop was of 26,9kg and went down another 2,5kg in 2010 before going back up by 12,2kg in 2011. That is almost half of the initial drop that took place in 2009 when the EI was introduced. Its introduction took place in only 4 months after plastic was introduced as a material that is collected from households. Due to this one cannot be certain which change was the main cause of the drop between 2008 and 2009. Moreover, the decrease of unsorted waste started before the EI was implemented. From 2007 to 2008 the decrease consisted of 17kg in Os and 19kg in Askøy. Considering the drop of unsorted waste from 2007 to 2009, it could be that the collection of plastic caused people to recycle more of various materials. The average person had sorted out 1.48kg plastic in Os and 2.21kg plastic in Askøy in the final months of the year. In 2009 it had increased to 7,02kg per person 6,32kg per person, respectively. The increase in kilos of unsorted waste per person in Askøy suggests that the effect of the EI has weakened since its

implementation, which could be a sign of crowding out. The forthcoming results from the interviews will provide plausible causes for this increase.

6.2.2 Kristiansand

Avfall Sør was previously called RKR which was started in 1994 and was the renovation company in Kristiansand. The now two year old stock company became an inter-municipal company in 1999 and changed its name from RKR to Avfall Sør in 2009. As with BIR, the owners are the municipalities it services.

In Kristiansand, the three waste categories that are collected from households are paper, organic waste and unsorted waste. It is the renovation company that decides what materials should be recycled and what is collected from the households. Paper was first collected in 1990, it is collected once a month and it is included in the flat fee. The collection of organic waste started in 1995 and must be delivered minimum 12 times a year due to hygiene regulations. Each delivery costs NOK30.32 for a 120 liter bin. The organic material is composted at a large composting facility, where people can collect fertile soil for free. It is possible for households to choose to compost themselves instead of delivering it for collection which would save them to the cost of having it collected. Meanwhile, unsorted waste can be delivered once a week if needed and costs NOK36.42 each time for a 120 liter bin. Before this, unsorted waste was collected every 14 days, so here the possibility to deliver unsorted waste has increased. There are containers located close to local stores or at curbsides where one can deliver glass, metal, textile and plastic. The glass and metal containers were introduced in the year 2000 while plastic containers were introduced in 1999. Other materials can either be delivered to certain stores or to the renovation station which is free.

After a 5 year trial in a nearby municipality, the EI was implemented in 2003. It was introduced to encourage increased recycling and allow households to choose when they wanted to deliver trash. Since Avfall Sør was started as a company that served Kristiansand, the decisions made regarding policy and the EI was made by the same people as before. The representative of the municipality referred me to speak to those working in Avfall Sør for any questions regarding the recycling system and the implementation of the EI. The representative of Avfall Sør stated that the EI was in place to enable people to influence their expenses and so it would be clear to people that they should recycle their organic waste. A standard subscription costs NOK3625 today, while two years ago it was NOK3215 and going back to the earlier years it continues to decrease. The price index is much responsible for the steady

increase, though the price index for today is not yet available so the more dramatic increase the last two years cannot be accounted for by the price index.

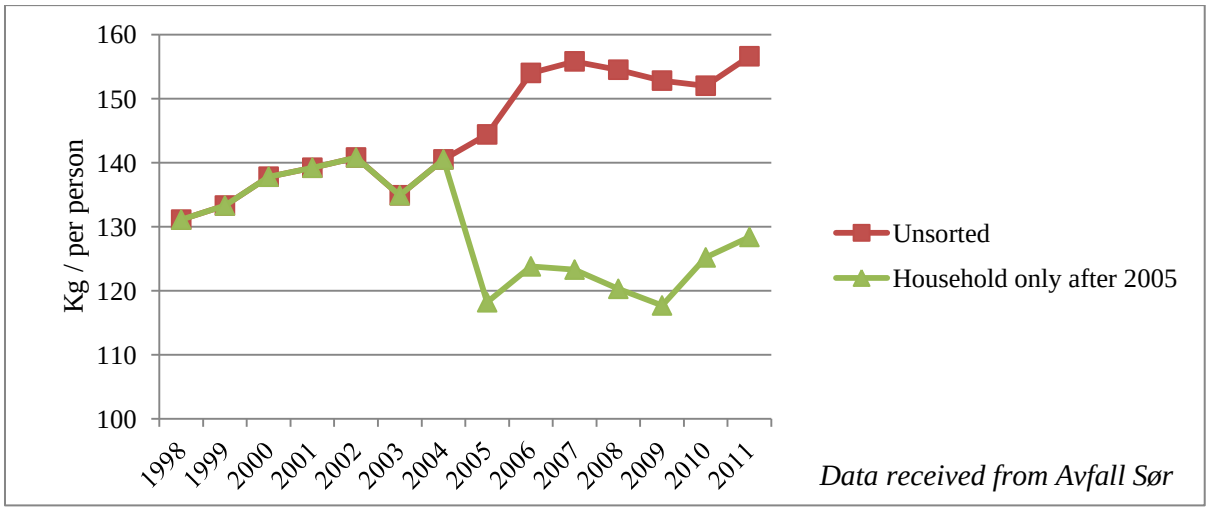

Figure 5: Unsorted waste collected in kg/per person from all households in Kristiansand, 1998-2011.

Notably, the number of kilos of unsorted waste per person are much lower here than in the other two municipalities. This is because in Kristiansand they started to sort out organic waste, which is the heavier form of waste, over a decade ago. In the earlier years, waste from commercial sources that were collected, such as shops, was included in the numbers of unsorted waste from households. In 2005, Avfall Sør separated the two sources. Therefore, in the graph, the green line represents data from households only after it was separated from commercial waste in 2005. After the EI was introduced in 2003 there was a slight increase, 5,6kg, of unsorted waste per person indicating that the incentive was not taken right away. From 2004 to 2005, the average dropped with 24,5kg. This drastic drop was due to the separation from the commercial waste. The drop assumedly caused by the EI only came into effect in 2006 since the graph shows an increase in both the commercial and household line from 2003 to 2006. As was the case with Askøy, the average has increased slightly the last couple of years. Whether this is due to increase consumerism, or whether any unintended effects have taken place is unknown so far. Nevertheless, comparing the average in 1998 and 2011, the reduction in unsorted waste per person is only 2,7kg.

6.3 Effects of the economic incentive on motivations to recycle

This section addresses the first research question which asks what effect the EI has had on the motivations to recycle. In order to be able to discover its influence one must find out what the motivations were when the participants started to recycle and compare that with what the current motivations are. These results are based on information gathered from the interviews unless it is stated that data from the questionnaires is used. Quotes from the interviews will be used to enable the reader to understand the results better, and are references using the participants ID number.

6.3.1 Pre economic incentive motivations

As revealed by the SEM analyses, habit is a significant variable in explaining the recycling degree. Naturally, once an act becomes a habit, one is more likely to perform the act again. However, the SEM analyses were not able to tell us why or how the habit was developed. It did show the variables that were found to relate to habit, but what caused the participants to develop the habit in the first place? What were the motivations? Was the evaluation behind the habit a conscious one? In order to answer the first research question of what effect the EI has had on *motivations* to recycle, one first needs to find out what the initial motivations were. What made the respondent *start* recycling? The participants were asked the question "What was important for you to develop the routines and habits you have today?" The assumption being that participants are able to remember their initial reasons for starting to recycle and that this is not been changed by motivations that might have been crowded in. Some responded with more than one motivation.

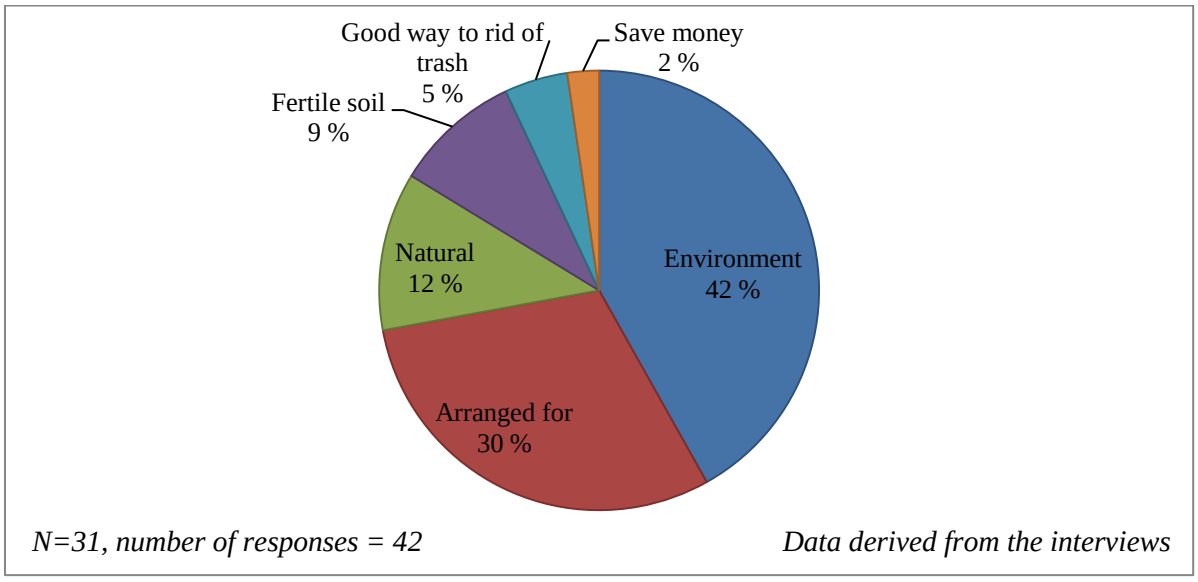

Figure 6: Self reported motivations important for developing the habit of recycling.

The motivation ‘Environment’ includes responses where participants expressed that they recycle for the benefit of the environment in general, so materials could be reused, to have a clean and tidy environment. The environment was a motivation to start recycling for 18 participants and made up 42% of the responses. 6 of these participants said that having the attitude that they were going to recycle was important in developing the habit; “if you have an attitude that this is going to be routine, that’s how it is. Then you get going and before you know it, it’s a routine. Like using a safety belt in the car, if you don’t wear it you feel naked” (ID1150). When I asked why or how they got that ‘attitude’, they were not sure; it was just something you had to decide upon. This attitude felt to resemble intention more so than ‘attitude’ in the sense of one’s attitude to recycling as written about in the literature.

The motivation ‘Arranged for’ entails the municipality arranged for recycling to be done, usually referring to the onset of collection of recyclables from households and that recycling containers for glass, metal and plastic (where applicable) were made available. There were some that phrased it as that it was imposed upon them to recycle, and those responses are included in this category. That recycling was ‘Arranged for’ is the second most prominent reason that recycling routines and habits was started with 30% coverage. 5 of the 12 respondents that fall into this category said recycling was ‘imposed’ by the municipal authorities. The word itself could be interpreted as negatively loaded, however it was not necessarily the case. A statement by one of these can give insight to this: “I should say the most important is the environment, I should mean that, and it probably is, but the most important reason is actually that it was imposed upon me. I would never have thought of doing it myself” (ID647).

Interestingly, 12% of the participants expressed that starting to recycle was a ‘Natural’ thing to do. This category includes responses where participants said that they could not explain why they recycle, that it is a natural thing for them to do and they do not know exactly why they started; “I don’t know what was important, it was just how it was” (ID1420), “It has just been natural, don’t think there has been any motivation, with the environment or anything, but it was just a natural thing to do, like normal courtesy" (ID1024). The latter response indicates that norms played a role. Two of these had recycled at their workplace for some time, so it was already a habit in one part of their lives, so making it a habit at home once that was arranged for was natural.

‘Fertile soil’ refers to responses where receiving fertile soil was a motivation for starting to sort organic material, which was an answer given when asked what was important in developing their habit of recycling. This motivation played part in developing the habit of recycling for 9% of the participants. For these 4 participants, the motivation was to gain a resource from waste. One participant said: “…I don’t have to buy fertilizer which only takes from the earth, but now I add to the earth” (ID1109) and another said “I have a big wish that others sorted out organic material for example, everybody could have composting like we do. It is such a huge resource that should not go in the incinerator” (ID814). Both of these responses indicate consideration for the environment.

That recycling is a ‘Good way to get rid of the trash’, that it made sense was a motivation for 2 participants, making up 5%. ID986 said that “it is a neat way to get rid of things, if you did not recycle then it would quickly get full in one particular bin” whilst ID940 said that “trash has to be somewhere, so to deliver it right is okay. I feel it is good to have it delivered, you do it right, you could say”. The former response implies a desire to minimize amount of trash in the bin, perhaps due to wanting to save money or to avoid the effort of having to take the trash out.

Only one person stated that to ‘Save money’ was a motivation for developing the habit of recycling. ID1000 did not recycle before the EI came into place, and had no other motivation to start recycling other than the economic one – “that we saved money”. It should however be noted that 7 other participants who *changed* their already accomplished recycling habit, were motivated by saving money. But these did not include economic reasons in their motivations to *start recycling*.

6.3.2 Post economic incentive motivations

This section will look at what the interviewees said is the most important motivations to recycle today. These motivations will be compared with the pre EI motivations, which will contribute to answering the question of how the EI effected motivations and recycling behavior. The SEM analysis showed that ‘Economic considerations’ influences recycling degree, as well as many of the other variables. Did economic considerations become more important than other initial motivations? To shed light this, I asked the participants “Finally, can you summarize the most important reasons you recycle today?” at the very end of the interview. Often, participants would give multiple reasons, so the illustrations below are not limited to one motivation per interviewee. Also, the responses that make up the below figure

include those given throughout the interview where the interviewees talk about why they recycle or why it is important to them.

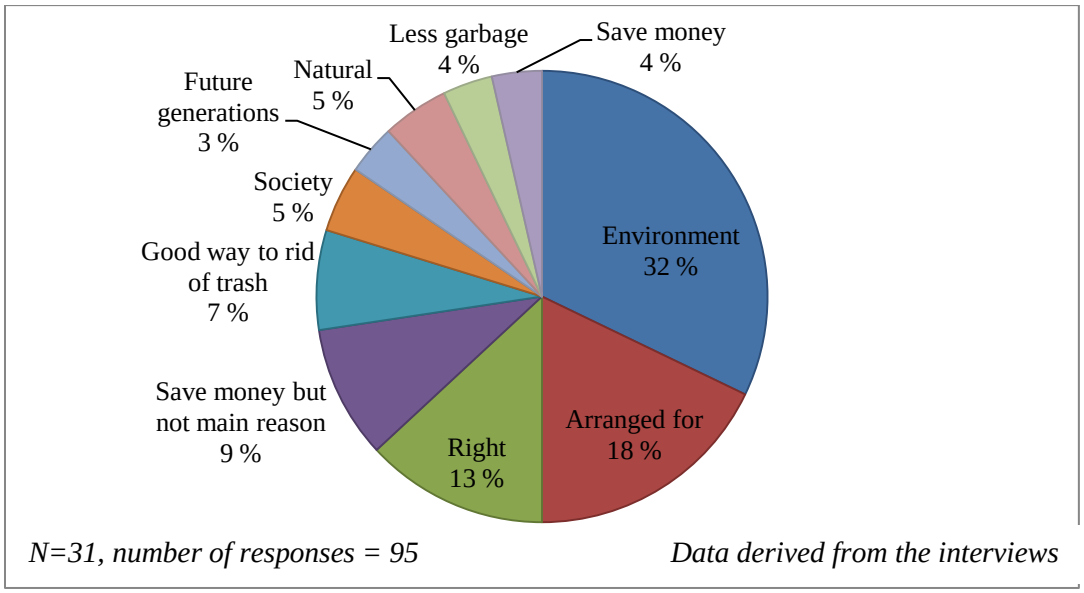

Figure 7: Self reported motivations important for recycling today.

27 participants (87%) of the respondents hold motivations connected to the 'Environment', an additional 9 participants compared to the pre EI motivations. These had then recognized and internalized the motivation of contributing to a better environment as a reason to recycle; "You must take care of nature and not throw trash out in nature…if I hadn't thought so much about keeping the Earth clean and healthy I probably wouldn't recycle" (ID632), "…this is important in taking care of nature, limiting and taking care of resources, that we can reuse what we have, considering the big picture" (ID955). Only 4 participants did not mention the environment to be one of the main reasons they recycle today.

48.3% of the interviewees are under the 'Arranged for' category, which are 2 participants more than at the evaluation to start recycling stage. Some responses were; "The most important thing is that the municipality has told us to do so, that's the most important reason" (ID1420) and "I did it because I was told to do it, I don't think I would have done it otherwise, I wouldn't have started at my own initiative. So it changed my behavior based on that it was forced, or it was encouraged" (ID647). This point to the importance of authorities signaling the population what is expected of them. Also, it relates to the found significance of duty to recycling degree and habit; though duty may be felt towards other entities and not the authorities.

The category ‘Right’ contains 11 participants (35.5%) and includes responses along the lines of that it is and feels right to recycle. A couple of the responses were: “Recycling, I feel that is right…I often felt it was very wrong how it used to be, everything went in the unsorted bin. Glass, paper, plastic, I thought that was wrong… I didn’t see the point, it had to be possible to do what we do today” (ID940), and “I think it is good to do this, right. It is sensible use of our resources” (ID919). This category did not come up as a reason for starting the habit of recycling, which may be because at the evaluation behind habit stage the connection between recycling and their values was not yet understood and internalized. Whilst now, participants may see the many reasons there are to recycle, making it the right thing to do.

The next category ‘Save money but not main reason’ is also a new category. Here, interviewees have explicitly said that money is not the main reason they recycle, but is an added positive aspect of recycling. It is not to be confused with the category ‘Save money’, where there was no mention of it *not* being a main motivation. 8 participants (25.8%) reported saving money an added positive aspect, none of which reported to ‘Save money’ as a motivation when they started to recycle. These participants did not start to recycle in order to save money, but saw it as a reason to recycle at present time. However, it does not mean that they increased their recycling efforts when the EI came into play. The forthcoming results are connected to the next section of the results chapter, but since the influence of money is of interest in this study, particular attention is paid here. Out of the 8 who mentioned saving money as motivation but not the main one, only one started to recycle new material, and one increased sorting efforts. Saving money may be a reason to recycle, but as we see here it does not necessarily transfer into action. The remaining 6 participants reported that the EI caused no change in their recycling efforts. For 5 of these the EI caused a decreased delivery frequency. The remaining individual out of the 6 that reported no change in recycling efforts also reported no change in delivery frequency. These individuals have stated saving money to be a reason for sorting, yet it did not cause them to actually change their behavior. This could be due to the marketing efforts of the renovation companies telling people that they save money if they decreased their frequency of deliveries of unsorted waste.

In the category ‘Save money’ there are 3 participants; 2 more that report ‘Save money’ as a reason for recycling when they started to recycle. Note that they did not *explicitly* say that it was not a main motivation. All 3 respondents reported to have increased their recycling efforts, so for these individuals the EI had its intended effect.

In the category ‘Good way to rid of trash’ there are 6 participants (7%), 4 more than at the pre EI motivations stage. Responses include “There are a few practical considerations, the waste needs to go somewhere and the current setting is quite rational, very rational” (ID893) and “It was a set up I understood the logic of… (which) is reusing material” (ID1150). Here, the participants might have gained information about waste management, reflected upon it, and agreed with that the current system is appropriate. It is similar to the ‘Right’ category, but the involvement of logical thought is clear.

‘Society’ is another new category that did not come up earlier and includes responses expressing that the benefits to society from recycling were a motivation. It was reported by 4 participants. One response was “I try to tell myself the most important thing is the sensible societal perspective” (ID1150). The other three participants just stated ‘society’ along with other motivations.

Recycling for ‘Future generations’ was a main motivation for 3 participants, another new category. Responses include; “we have use of recycling for our descendants, if we think that the oil supply will end and we won’t have anything to make plastic of anymore…” (ID1109), “(recycle) not just for people in other countries who do not have the opportunity to consume all this, but also for future generations” (ID1300). These responses display altruistic motivations, as it is directed at people of the future and does not involve any individual benefit. Arguably, they may feel sense of guilt for the pollution on behalf of previous and the current generation and want to relieve this guilt, in which case it is impure altruism.

In the category ‘Natural’ are 4 participants, one participant less than at the evaluation stage. However, only one of those who stated it was ‘natural’ to recycle in the evaluation behind habit stage stated it to also be the main reason today. Hence, a total of 8 participants stated that recycling was a natural thing to do at some point in the interview. The one participant who reported it was natural both when he started to recycle as well as now stated “I don’t have a very good reason to that I recycle, it just feels natural” (1024). This individual opens up for the possibility there is not necessarily a deliberation or evaluation made to start and maintain recycling behavior.

Another new category is ‘Less garbage’ which holds 3 participants. They expressed that reducing the amount of trash was important to them. A couple of responses were “I agree with the general thing that it is important to reduce both the amount of waste, by recycling to reuse things so we don’t have to make more waste and that nature should not be the one that

treats waste" (ID799), and "When we produce as much waste as we do today, let's say in 50 years, what is it going to look like in this country?"(ID949). This category is in part subordinate to other categories; wanting less garbage to be produced can reflect both cares about the future of the country and society, care for the environment, saving money or a combination of these.

To summarize, the main reasons why respondents started to recycle are the environment; that it is arranged for; to gain fertile soil; that it was a natural thing to do and that it is a good way to get rid of trash. The reasons for recycling today increased in range, including new motivations; recycling for future generations, society, less garbage and that it is 'right'. The environment was a motivation to start recycling for 58% of the interviewees, which increased to 87% of the sample who stated it as a reason for recycling today. Hence, there had been an increase in motivations rooted in consideration for the environment. This section addressed the first research question asking whether the EI has had an effect on motivations to recycle. The results are that the EI was an additional motivation for 25.8%of the sample after it was implemented, and a *main* reason 9.7% of the sample. A total of 35.5% reported saving money as a reason. Hence, 64.5% did not mention it to be a reason they recycle at all indicating that crowding out of initial motivations have not been replaced by monetary ones. Saving money was the only motivation for 1 individual to start recycling and included as a main motivations for 2 other respondents, who increased recycling due to the EI.

6.4 The effect of the economic incentive on the act of recycling

So far we have looked at the effect of the EI on motivation to recycle. This section will look more in detail at the second research question; on the effect the EI had on recycling behavior, both in terms of delivery and actual recycling efforts. Investigating the effect of the EI on recycling practices will contribute to answering the question of whether it is an efficient policy instrument. Also, it could uncover whether crowding out has occurred; as past empirical studies suggest a reduction in recycling could imply crowding out (Berglund, 2003). However, the occurrence of crowding out cannot be determined solely by looking at behavior, which is why the above sections on motivations compliment these results.

6.4.1 The effect of the economic incentive on recycling habits

The participants were asked if they had "changed any routines or habits after the introduction of the EI". If their answer was vague I followed up with the question "do you recycle more or less?" The results from these responses are illustrated in the two graphs below, the first concerns the recycling habits, the second concerns the delivery habits.

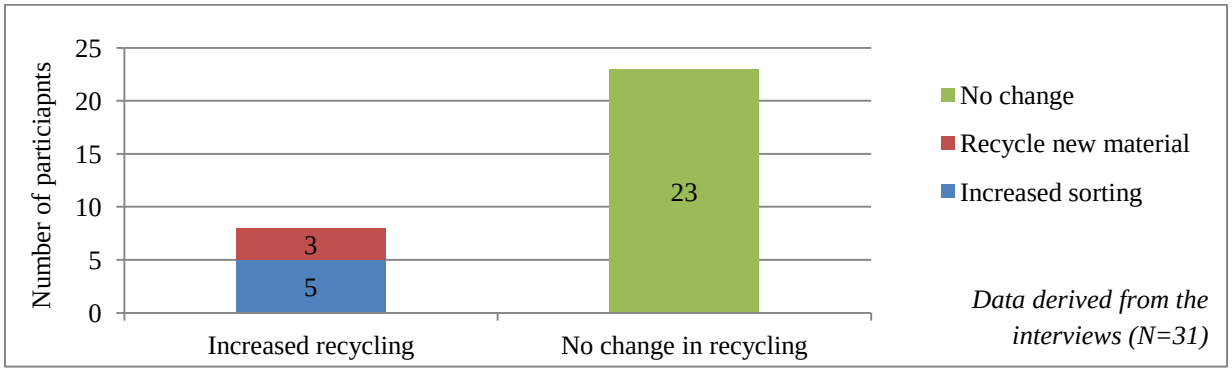

Figure 8: Self reported effect of the introduction of the EI on own sorting effort.

Making up the majority, 74% of the participants reported no change in their recycling efforts after the introduction of the EI. 26% of the participants reported to increase their recycling efforts. 5 said that they increased sorting efforts, whilst 3 said they started to recycle another material. 2 of the participants in the 'No change' category said they did not notice the introduction of the incentive. Hence, the EI had its intended effect of increasing recycling efforts on a quarter of the sample. Whether this outcome of the use of the EI can be viewed as a good one, depends on whether the EI has had any negative impacts, which may outweigh the increased efforts of the 26%.

Nobody stated that they *reduced* their recycling efforts; however, 2 participants indicated that there was the potential of that happening: "…I see possibilities of that if the price increased so that you get annoyed enough, angry enough, then you might care less, I see possibilities for that, but it's not like that for the moment" (ID799), "It just makes me annoyed when I look at the bill, that they add to it because I deliver trash once a week, so that is 500kr or something at the end of a year. That provokes me to be honest." (ID848). When I asked ID848 why he felt this way he said "Because if I had bothered I would take all the trash and throw it in the cabin containers that I already pay 1000kr for, then I wouldn't need to throw trash here at all". These responses indicate the possibility of people going outside the system.

6.4.2 The effect of the economic incentive on delivery habits

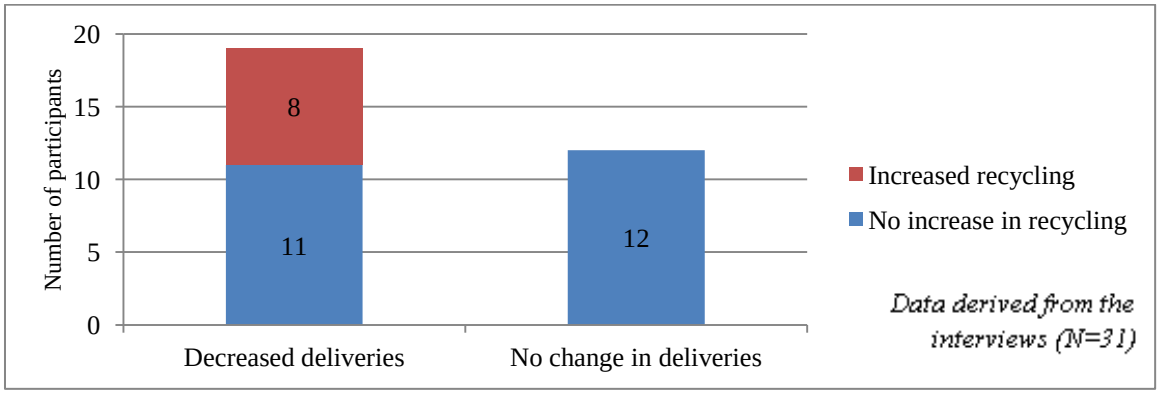

Figure 9: Self reported effect of the introduction of the EI on delivery frequency of unsorted waste and the effect it had on recycling efforts.

The EI motivated participants to reduce the number of times they deliver their unsorted waste. 19 participants (61,3%) decreased the number of deliveries, of which only 8 actually increased their recycling efforts by either increasing sorting or starting to recycle a new material. This suggests that the 11 participants who did not increase their recycling in order to decrease number of deliveries had no need for more frequent deliveries. When asked whether they changed their routines or habits with the new system, a quite typical response was: "No, I didn't. I didn't change my routine, but perhaps I take down the bin less frequently. Before I took it down once a week, even though it wasn't full, whilst now I take it down once a month, because then I don't have to pay more" (ID919). 51% of all the participants explicitly said that they recycle as much now as before the incentive.

Some made a different kind of effort to reduce deliveries without increasing their recycling efforts. 4 participants reported to throw their trash elsewhere, due to the EI. Of these, 3 participants started to deliver trash to the renovation station, even though 2 of them lived in municipalities where the renovation stations take a fee for taking in trash. The remaining one took trash to a container at his cabin. ID848 started to take it to the renovation station and occasionally sorts his trash at the petrol station. Even so, he delivers unsorted waste every week. Arguably, he makes an effort by sorting waste at the petrol station which he said had recycling bins, so he is not merely getting rid of unsorted waste. Regardless, he is not able to cut down his number of deliveries. These participants have looked for alternative ways of avoiding the cost of each delivery of unsorted waste, which is clearly an unintended effect.

Under the 'No change in deliveries' category are 12 (38%) participants and the reasons for this vary. Some did not deliver until the bin was full even before the EI; "No, I've always been used to putting it out when it is full" (ID1375), some are not aware of this pricing system; "Nothing, nobody thinks about that. You get an invoice no matter how many times you deliver or not. If you deliver one or two times too many, then that does not mean anything" (ID1302). Whilst for others the price does not have an impact; "It does not work as anything. We deliver every week. We are just happy to get rid of it" (ID1420). The latter participant is from Kristiansand, like 6 others that are also in this category, which make up more than half of the total sample. In Kristiansand the EI has been in place since 2003 so even if it had an effect at that point in time, its effect may have weakened. Before the introduction of the EI in 2003, unsorted waste was collected every other week, whilst now people have the opportunity to deliver once a week. As reflected in the statement made by ID1420 who now delivers unsorted waste every week, some might have increased number of deliveries. This signifies that some people are not influenced the presence of the EI.

To summarize, the main effect of the EI on recycling habits involve the frequency that the unsorted waste is delivered for collection. 61.3% of the sample decreased the number of deliveries they make, by which they saved money as each delivery cost 30,32NOK or 34NOK depending on the municipality. 57.9% of those who reduced their deliveries did not have to change their recycling efforts in order to do so; they merely waited for the bin to be full before delivering it, hence they were already recycling what they could or were willing to. Moreover, 28% did not change their delivery habits at all, meaning that the EI was not a motivation for them to reduce deliveries. In terms of recycling efforts, 74% of the total sample reported no change. Nevertheless, 16.1% of the total sample increased their *sorting* efforts, whilst 9.7% started to recycle a *new material*. Hence, the EI had its intended effect on 25.8% of all the interviewees.

6.5 Factors that influence the effect of the economic incentive

The aims of this study include investigating whether EIs are good long term instruments to implement in order to encourage increased recycling. This section provides information on variables that appeared to potentially influence the effect of the EI, which policy makers could address in order to improve the results of the EI implementation.

6.5.1 Perceptions of the price

The cost of delivering the unsorted waste can be considered too high, not high enough or not considered at all. Unfortunately, the interview guide did not include a question dedicated to the price itself, but it was brought up as part of replies to questions regarding the effect of the incentive and the participants' perceptions of it. Due to this, only 27 of the 31 interviewees can be placed in the below.

7 participants stated that they thought the price was much too high; "I think that renovation cost is insanely expensive. I mean, I know it cost to manage the waste, that's fair enough, but I think it's too expensive just to get it collected" (ID1024). Of these, 3 did not change their recycling efforts while 4 increased their recycling efforts. That means that 50% of those who increased their recycling thought the price was too high, which is most likely the reason they made an effort to increase recycling. Indeed, all of those who reported that saving money was a main reason for recycling today belong to this category.

By contrast, the price was reported to not be high enough to make them care enough about reducing deliveries by 25% of the participants. As one would expect, none of them increased their recycling.

38% of the 31 participants expressed that the money did not play a role in their recycling behaviors and 11 of them did not change their sorting efforts. However one did report to recycle a new material as a response to the EI. Of the 11 who did not change their sorting efforts, 5 decreased their delivery frequency while 6 did not. Naturally, those that do not see money as a significant factor should not be influenced by the EI. Some of the responses were "For us the money doesn't matter, its more about responsibility to be environmentally aware, usually there is a consideration for money, but not on this matter" (ID903), "… it (the EI) is not the reason I recycle, it's is not to save money" (ID919) and "Those kroner are a drop in the ocean to me" (ID848). Nevertheless, 5 participants who stated that money did not play a role in their recycling did still decrease their delivery frequency. This indicates that that the money had an effect in the sense that they wanted to save money where possible, but were not willing to change their sorting efforts because of money. One participant made an interesting statement that "if you think about economics with regard to the trash bin then of course it does (work against its purpose). If you think about money then that would negatively influence recycling" (ID1302). His reason was that if money was the issue, then one would throw the waste that cost to deliver into the other bins. This would have been a clear case of crowding

out, as one would disregard any previous internal or other external motivations to recycle in order to save money.

6.5.2 Carrot vs. punishment

The EI was meant to be perceived as a so called 'carrot', stimulating recycling by the prospect of saving money. However, it is perceived in two different ways by the respondents. The cost of each delivery could either be perceived as an opportunity to save money, or as an extra cost. If the EI is viewed as the former it could act as a welcomed contribution to the group of motivations a person might have to recycle. On the other hand, if viewed as a cost, or as a punishment for not recycling well enough, it is a negative addition to the motivations to recycle. The participants were all asked whether they perceived the EI as a 'carrot' or as a 'punishment' during the interview. Whether the incentive is viewed in a positive or negative way is probably influenced by various factors for each individual, which this study does not map out. However, the relationship between perceptions of the EI and the effect it had on recycling behavior is presented below. The direction of the causal relationship cannot be confidently determined, however, some of the statements indicate its direction.

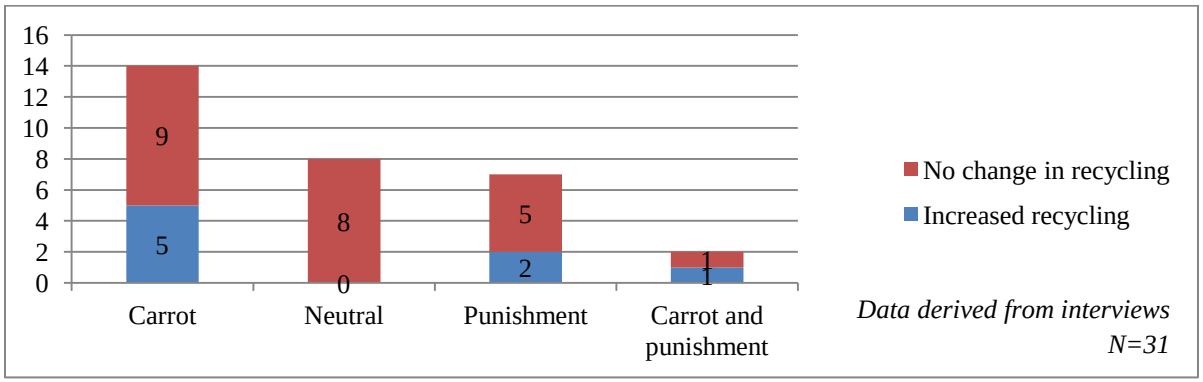

Figure 10: Perception of the EI and the changes made in recycling efforts due to the economic incentive.

45% of the participants view the EI as a carrot, while 22,6% view it as a punishment. Meanwhile, 25,8% were neutral, or did not have an opinion, whilst 6,5% view it as both carrot and punishment. 9 of the 14 that view it as a carrot reduced their delivery frequency of which 5 took the carrot and increased their recycling efforts; "It worked as a carrot for me. If it wasn't for the incentive then we wouldn't recycle our trash" (ID1000), "It takes more to go from saying what you think when you are asked, to practically doing it. It was a little push (referring to the EI)" (ID1150). Here, the EI has clearly had its intended effect and stimulated

increased recycling. The majority of the 8 that actually increased their recycling efforts are those who view the EI as a carrot. Moreover, of the 8 respondents that held a neutral view of the EI, meaning they do not have a particular opinion of the incentive, none increased their recycling efforts. Hence, it is important to ensure that the EI is viewed as such in order to increase recycling behavior.

6.5.3 Perceived fairness

Perceived fairness of the EI seems to be connected to the view of the EI, which in turn influences what effect the EI has on behavior. A total of 7 participants said that the EI was unfair to those with children, all of which viewed it as a punishment or were neutral. They say that families with children already have a lot of expenses while they also have to deliver trash every week especially if they have children using diapers; "I think it's just another way to draw money out of people. Especially young families.... There should be a discount for those that do not deliver the bin instead of an added cost to those in society that usually have the most expenses, since you have children and children cost money" (ID848). What this participant describes is actually the way the renovation companies have tried to frame the EI; that those who recycle more save money. Yet, this participant views the situations as having to pay more for delivering the same amount of waste as before the EI. The invoice that the renovation companies send out may be a cause in this as it displays *added* costs per delivery, rather than subtracted cost from a set price. These added costs are then perceived to be unfair to young families for whom it is difficult to reduce deliveries.

That the EI is *fair* was expressed by 6 participants, 4 of which view it as a carrot, 1 that view it as both and 1 that is neutral. Hence, none of those that view it as punishment said it was fair. A couple of these responses were "… there is fairness in the picture, those with less waste pay less" (ID814), and "Perhaps I even think it is more fair… even though I thought it was fulfilling before the incentive too… but when its economically sensible then others probably get better at it" (ID1322). Here the fairness has two different nuances. The first refers to fairness in that one pays for the waste one has; whilst the second statement refers to that the EI makes *other* people recycle.

One participant who viewed the EI as a carrot did indicate that she could have viewed it differently if her children were still living with her; "I would perhaps see it as a possibility to save some money, especially if you are just two then it's not the same amount of waste as when both children lived here". This indicates that young families are perhaps more inclined

to view the EI as a punishment. As the majority of those who actually increased their recycling efforts are those who view it as a carrot, perceived fairness is important in whether the EI will have its intended effect.

6.5.4 Summary on perception of the economic incentive and response

Of the interviewees who mentioned the price of the EI, only those who thought it was too high increased their recycling, except for one individual who did not consider money in his recycling behavior. The majority of these said that the money did not play a role in their recycling behaviors, as the environment trumps over monetary considerations. Moreover, whether one perceives the EI as a punishment or as a carrot seems to influence the effect it has. The majority of those who actually increased their recycling efforts view the EI as a carrot, while none of those who view it as a punishment did. Whether the EI is perceived as fair further correlates with whether one views the EI as a carrot or as a punishment, as none of those who felt it was a punishment thought it was fair; rather they thought it was unfair. Young families were usually the object of most of the participant's concerns surrounding fairness.

6.6 Variables of further investigation

The SEM revealed significant relationships between duty, negative feelings, positive feelings and recycling degree. The third research question asks *how* these variables influence recycling degree in a setting with an EI in place. In order to do so, the themes were included in the interview guide. However, as is the case with qualitative data there was a large array of responses. For the sake of having a focused presentation, only selections of the findings are included here.

6.6.1 Duty

Duty is based on norms as it refers to feelings of moral obligation or responsibility. The SEM analyses in the initial study show that 'Duty' has a strong positive relationship with recycling degree. To remind the reader, 'Duty' was measured by the statement "I see it as my duty to recycle'. The term duty could entail different meaning to different people; is it a personal duty, duty to society, or a duty to the authorities? To answer this question, the interviewees were asked "There are many who view recycling as a duty; how do you think about recycling and duty? Is it a duty because it is expected by the municipality or others? Or is it a duty because it is a personal responsibility and is just something you do?"

16 of the interviewees thought it was not a duty, whilst the remaining 15 thought it was; "I mean it is a duty, because if you don't do it, it costs something" (ID1420). Out of the 15 interviewees who view recycling as a duty, 11 thought it was a personal responsibility; 5 of the 11 also thought it was a duty because it was expected by the municipality. 46.6% of those who felt it is not a duty said it was rather a personal responsibility; "I don't think it is a duty, I could just not do it (recycle), I don't have to. But I think it's a good thing to do… I'd rather say it's a personal responsibility" (ID919). Hence, the majority of the total interview sample, 58%, views recycling as a personal responsibility; "I guess it is a duty, but if you internalize it then it doesn't feel like a duty but more as a responsibility towards society. Not as a duty or imposed demand, but an action you take upon yourself to do because it is right" (ID1300).

Interestingly, out of the 8 participants who increased their *recycling* due to the EI, 5 of them do *not* view recycling as a duty. Those who do not think of recycling as a duty make up 80% of the 5 who increased their *sorting* efforts, and 33,3% of the 3 who started to *recycle a new material*. Their lack of sense of duty yet change in behavior suggest that they were motivated by the EI; indeed 3 of 5 who increased their sorting efforts reported saving money as one of their main motivations for recycling today. Nevertheless, 2 of the 3 who started to recycle a new material and 1 of the 5 who increased their sorting thought recycling is a duty.

6.6.2 Positive feelings

The interviews indicate that positive feelings strengthen recycling behavior. However, it is not necessarily so. Each participant was presented with the question: 'Some report that they experience good feelings such as a good conscience, satisfaction and independence when they sort their waste. Do you feel anything of the sort?" 51,6% of the participants answered yes to this question, 15 of which excluded the feeling of independence. Moreover, 6 of those who experience positive feelings expressed that doing so made them recycle more. When I asked ID1439 how she thought her experience of positive feelings influenced her recycling behavior she answered "Positively, because when I feel that I have sorted right, have a good conscience, then I want to keep sorting it right and teach others how to sort right". For these participants, the good feeling may act as a reward and could add to the benefits of the behavior.

Nevertheless, one cannot assume that the experiences of positive feelings are part of why somebody would recycle. Some participants explicitly said that the positive feelings they experience are *not* part of why they recycle; "I do not recycle to achieve good feelings, I do it

because I think it is right and if I do not recycle then I experience that as a negative and that corrects it" (1322). This statement also suggests that affective responses are due to the adherence or breaking of a norm as theory will have it.

There are also individuals who do not experience positive feelings, yet recycle. 32.3% of the sample said they do not experience positive feelings because it is either 'just something you do', or because it is a habit. Using data from the questionnaires, the recycling degree of this group of participants was average. 4 recycled 'everything', 4 recycled 'almost everything' while the remaining 2 recycles 'quite a bit'. The effect of the EI on these individuals varied. Interestingly, half of those who increased their recycling efforts are in this group of individuals; 2 increased sorting while another 2 started to recycle a new material. Of these 60% say recycling is a duty, whilst 40% say recycling is not a duty.

6.6.3 Negative feelings

The interviews suggest that negative feelings may act as a mechanism to maintain recycling behavior. Out of the 31 participants, 15 (48,4%) reported that if they threw something in the wrong bin, it would feel 'wrong', while 11 (35,5%) said they would feel guilt; "When we are at our cabin it feels very strange to not recycle, to throw it all in the same bin. It makes me want to put all the glass and metal boxes aside and take it home and recycle it. I could do that" (ID632O), "I do not like it, I think it's uncomfortable every time I throw something in the unsorted bin that could have been sorted if I had spend time and money on it" (ID799). Note that one participant may have reported both the above negative feelings. 6 of the 15 participants who did not experience good feelings included in their response that if they threw something wrong, or did not recycle, they would get a bad conscience. As ID1322 puts it "…I think we throw too much, I think that this is how it should be and this is how it will be. It's neutral but then it is negative to not recycle". Suggestively, these participants do not experience positive feelings from adhering to the norm, but experience negative feelings when breaking the norm; **"**I experience a bad conscience if I throw wrong" (ID1450). The possibility of experiencing negative feelings by derailing from their recycling behavior is likely to play part in maintaining the behavior.

6.6.4 Duty and feelings

The SEM also showed a significant positive link between duty and positive feelings, as well as a strong negative relationship with negative feelings. To repeat, the negative feelings in the SEM entail feelings of force and control which is not the case with the negative emotions

expressed in the interviews where annoyance was the most prominent negative feeling described.

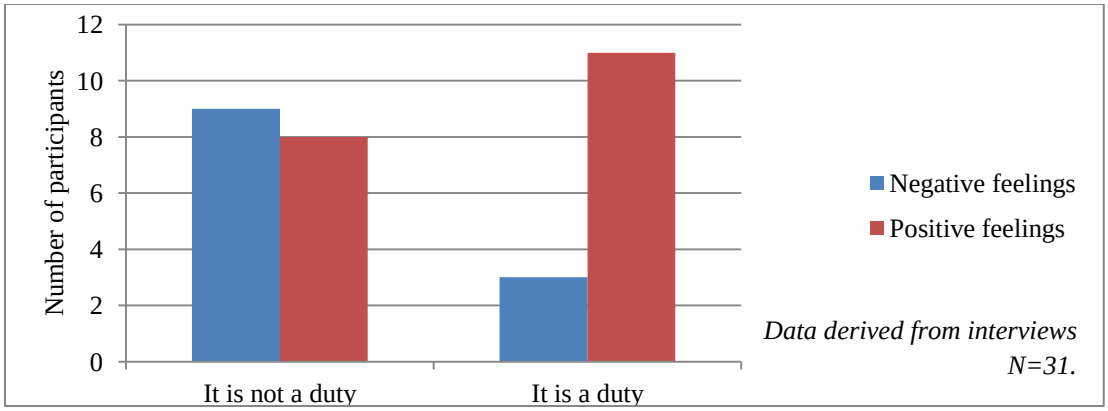

Figure 11: Feelings experienced by those who view recycling as a duty and those who do not.

The relationships between duty and feelings, both positive and negative, were apparent in the interview sample. In the above graph, some participants are in both the positive and negative feelings category, as they could experience both. Moreover, positive feelings entail good conscience, satisfaction and pride. Negative feelings entail annoyance towards practicality issues, the EI or situations where the environment is not considered and feelings of force. There is an almost equal distribution of positive and negative feelings by those who do not think recycling is a duty with 8 and 9 participants respectively. Meanwhile, of those who think recycling is a duty there are 11 who report positive feelings and 3 who report negative ones. Hence, those who feel a sense of duty are more likely to experience positive feelings and less likely to experience negative feelings than those who do not feel recycling is a duty.

In summary, half of the participants feel recycling is a duty whilst the other half does not. 62.5% of those who increased their recycling efforts belong to the former category. In terms of feelings, 51.6% of the sample experienced positive feelings, and 19.4% said the experience of positive feelings, such as a good conscience, strengthen their recycling behavior. Some may experience the emotions to be an added 'bonus' to recycling, but it is not to be assumed since some explicitly said that they do not recycle *in order* to gain the positive feeling. 32.3% of the sample do not experience positive feelings but they recycle because it is habit or 'just something you do. On the other hand, for the 48.4% who feel 'wrong' if they throw material

in the wrong bin and 35.5% who feel guilt the negative emotion may act as a mechanism that ensures continued recycling. Furthermore, more of those who felt recycling is a duty experienced positive feelings and less felt negative feelings compared to those who did not see recycling as a duty. The difference in numbers are not large, however, it is in line with theoretical predictions of that once one adheres to a perceived norm one experiences positive feelings and negative ones if one breaks the norm.

6.7 Undesirable consequences of the economic incentive

The last research question concerns if and how the EI changed the norms surrounding recycling. The interviews revealed that it has, and the potential developments from those changes are cause for concern as will be discussed in the next chapter.

6.7.1 Used as justification to go outside the norm

8 (25%) of the participants said that there was a chance that people or themselves would go outside the system if prices increased further; "What I'm thinking is that, a challenge that has been before and is now is that people throw trash other places and in nature to avoid paying so much, because there are too many expenses" (ID995). One participant expressed that he understood people who throw their trash in inappropriate places; "What you get back for it (recycling) is a higher renovation cost, that's not motivating. Take the renovation station we have on Askøy... I understand people who get pissed off and dump it outside. People have done that many times…Why should we drive all the way there and then pay a fortune, not a fortune, but a quite a lot, to get rid of some trash? You can throw it in the trash, throw it somewhere along the road or somewhere else. I understand that people think that way…" (ID1024). This statement demonstrates the negative unintended consequence of people going outside the system, in order to save money. The fact that a quarter of the sample are thinking about going outside the system or think others will suggests that the PBTB fee system is pushing recycling to a domain of economy, where breaking the norm of recycling is justified due to that the renovation costs are perceived to be too high.

6.7.2 Discredits the intentions behind recycling

That recycling seems to be about costs and benefits, not the environment, was expressed by 8 (25,8%) participants. Of these 8 interviewees, 75% did not change their recycling efforts, whilst 25% increased their recycling. However, the average of those who increased recycling out of the total sample is 25,8% so this issue does not necessarily influence the effect of the

EI. Nevertheless, a couple of responses were "It has nothing to with environmental benefits, it's only about economics. When they are being so difficult, why should we be drivers for recycling, think about the environment and then we sit here arguing about money. It has nothing to do with the environment" (ID1024) and "It is okay that people make money of it, but when people make money on a job that you are doing, then I don't feel it is a duty' (ID1024). The latter statement implies that crowding out could have occurred. He says that once people are making money of something he does, he no longer feels it is a duty, indicating that he did before. The involvement of money might reduce the credibility of that idealistic reasons are truly be behind the encouragement of recycling.

6.7.3 Conflict between domain of morality and the incentive

During the interviews the increased trend of adding expenses and special taxes to change behaviors in Norwegian policies was mentioned. From now on it will be termed 'The Norwegian expense policy'. Though only 5 individuals brought it up, the interesting issue is that they make up 57% of those who view the EI as a punishment, and 12.5% of those who were neutral; none view it as a carrot. One said "I am no environmentalist…but it seems like the most important thing is to get money of people… as long as you pay for it, then it's not so bad…when they can't get money of you then it's not so important. That's annoying. If it had been so important … then they would have done something about it, not asked people to pay for it" (ID647). Another participant said "I am sick and tired of those kinds of reasons, because today the only method politicians use to make people change their routines, habits and activities is by imposing expenses and special taxes…in addition to the old system with taxes which are supposed to cover everything that is common…so we probably spend 60-70% of our income on taxes and expenses" (ID799). The same participant stated that each price is so small that the incentive loses its effect, but the total price of all combined is too high. Whether it is awareness and political engagement that causes a negative perception of the EI and the Norwegian expense policy, or whether it is a person's own inability to reduce number of deliveries and so look for reasons for being 'against' the EI, is uncertain.

6.7.4 Uncertainty about the consequences of recycling

According to the norm activation theory, knowledge of the consequences of choice and acceptance of responsibility is vital in norm activation. Uncertainty about the consequences of recycling is therefore important in addressing why some may not recycle as much as they could. Though this is not necessarily a direct effect of an EI, it is still relevant to the question of whether an EI is an optimal instrument in encouraging increased recycling. Uncertainty of

consequences could in combination with the above undesirable effects cause a halt in norm activation.

The interviews revealed that there is a fair amount of uncertainty about whether the recycled materials actually get recycled; ID955 states "you question the benefit and that is demoralizing". There was no question dedicated to this issue; instead it was brought up by the interviewees themselves so it is possible there were others who felt the same but did not express it. Over half of the participants, 17, are unsure whether recyclables go where they are supposed to because they hear rumors of that it is all mixed in the end, or taken to be burned at the incinerator; "I think everything goes to the same place. They've bought a billion kroner drain to burn and recycle trash, paper and plastic and everything…I don't know, I've stopped caring about it…" (ID1420).

4 of the 5 participants who increased their sorting efforts are unsure recycling goes where it is supposed to. Moreover, 2 of the 3 that started to recycle a new material are in this category as well. Suggestively, these individuals did not recycle all they could before the EI came into place because they were unsure of the benefits of recycling. Hence, the EI can give motivation to those who are unsure of that the material gets recycled as they are told. However, it would be more efficient and positive in the long term to focus on eliminating such uncertainty, rather than implementing an EI and leaving people still unsure of whether recycling in fact benefits the environment.

The participants were asked how strongly they think recycling in the household contributes to the environment. Out of the total 31, 13 participants said they think it contributes a lot, 9 thinks it helps, 8 said they did not think it contributes very much whilst 2 said they think it might be worse for the environment. Hence, a third of the participants did not believe that recycling significantly benefits the environment; "…to hear that they send it to Sweden makes me wonder how much benefit it gives the environment, I question it" (ID995). One of the 2 participants who suggest it might be worse for the environment said "…you hear that they complain in Rådalen (the local incinerator) that they get too little trash to burn. What I am noticing is that recycling perhaps is not so good for the environment" (ID1000).

Interestingly, all 17 of those who hear rumors of recyclables getting mixed together, also say they *hope* it go where it is supposed to; "It is very complex and difficult to keep tabs on and therefore feel confident that this is sensible, but I choose to believe it is" (ID1322). Hope is also expressed by 5 out of the 9 participants who question the environmental benefit; "I

imagine and hope and believe that it helps the environment. At least I think so... but we don't know really, do we?" (ID940). One participant in particular with a low self reported general recycling degree (3 = quite a bit) said "The most important reason I recycle is because I hope it has meaning. That's the main reason really, I hope it has a purpose, that it is not meaningless…by all means I hope, but I think a lot of it is a waste of time, without being pessimistic, I just think I'm just being realistic" (ID848). As stated, he does not truly believe recycling benefits the environment, which might be one of the reasons why he is on the lower end of the recycling degree scale. Alternatively, he opts to believe this to justify that he only recycles ''Quite a bit'.

6.7.5. Summary of the consequences of the economic incentive

The implementation of the EI has in these areas of study caused some people to understand, or be accepting of that others may go outside the system by throwing trash where they are not supposed to in order to save money. A surprisingly high 25% of the sample expressed that they or others could at some point go outside the system if the price increased any further, meaning that they already feel pressed up against a wall. Another cause of concern is that the present EI gives reason to doubt the intentions behind recycling activities, which would influence the value that is inherent in the recycling norm. The introduction of money has caused a quarter of the sample to believe that somebody is making money of their efforts to recycle. For others, the prospect of another making a profit of their efforts makes recycling not a duty any longer; hence the norm may be weakened due to the EI. Moreover, the mention of the 'Norwegian expense policy' suggests that introducing an EI to the recycling 'sphere' that has been in the domain of morality causes conflict because the EI 'belongs' to the domain of economy where 'I' rationality rules. On another note, uncertainty about where trash ends up is damaging to recycling behaviors. 75% of those who increased their recycling efforts due to the EI were unsure whether the recyclables go where they are supposed to. This means that it was not necessarily the case that these individuals were *not* motivated by idealistic reasons, such as the environment; instead they did not think that the system was working as it is supposed to.

7 Discussion

In this chapter I discuss how the above findings answer the research questions and discuss how the two economic theoretical positions may explain some of the findings.

7.1 Effects of the economic incentive on recycling motivations

The interviews revealed that reasons for why participants started to recycle are to contribute to the environment; that it was arranged for by authorities; to gain fertile soil; that it was a natural thing to do; that it is was a good way to get rid of trash or a combination of these. The motivation of wanting to contribute to the environment is the least selfish reason here, the one which is considered to be based on social and biospheric values. Within the 'contribute environment' category, saving resources for future generations or that recycling is important for society and keeping it clean and tidy, are based on basic social values. While the biospheric values are indicated by those who want to recycle for the environment and take care of that around them. Through national Norwegian social institutions, Norwegians learn to value and appreciate nature by having a direct relationship with nature through the outdoor activities (Norwegian term: friluftsliv). Norwegians are said to be 'born with skies on' (Spinu, 2010), which is a testament to the frequent active life many have with the outdoors. Hence, nature is important to the Norwegian identity which may be partly why the norm of recycling was maintained even without external incentives (Verplanken & Holland, 2002). This is just one of the ways that demonstrate that nature is generally valued in Norway, as this is where the study is done. Neoclassical economic theory does not recognize the reciprocal relationship between the individual and surrounding norms, while the classical institutional economic theory explicitly does.

Leaving the neoclassical economic theory unable to explain their motivations, some respondents said their reasons for starting to recycle and/or reasons for recycling today was that it was natural to do so. This indicates that there was not necessarily a conscious evaluation of why one should recycle. How else would one start to recycle? According to Hodgson (1988), it could be because one has learned the behavior at a young age and have adopted the behavior without calculating whether it makes sense to do so in terms of maximizing own utility. The formation of habit is explained by neoclassical economic theory as a method of minimizing evaluation costs when one does something over and over. But this

theory insists that a conscious evaluation was made with an aim of maximizing utility. The classical institutional economic theory gives room for formation and reproduction of habits without an evaluation of the costs and benefits; through that one follows what one is expected to do, through the norm. For example, in the home sphere with parents that recycle, children see and learn that they should recycle, and they do so because it is 'just how it is'. This is where that recycling is 'just what you do' and that it is 'natural' fits in. The classical institutional economic theory is able to explain why those who do not report saving money as a reason for recycling still recycle; with that cooperation is expected regardless of external incentives where cooperation is the norm. If cooperation is no longer the norm, then reframing from 'we' rationality, which is linked to the domain of morality, to the 'I' rationality, which is linked to the domain of economy, may occur. At this point, the external incentive would need to be sufficient to motivate and activate recycling (Thøgersen, 1994).

The main reasons why people recycle today were very similar to those that caused them to start recycling with the exception of two categories, namely 'to save money' and 'to save money, but not the main reason'. The EI was an *additional* motivation for 25.8% of the sample after it was implemented, and it was a *main* motivation for 9.7%. This means that for the remaining 64.5%, saving money had not become a reason to recycle. Meanwhile, the ideological reasons to recycle had increased amongst the participants. Consideration for the environment was a reason to start recycling for 58% of the sample, and it increased to 87% who include it as a reason for why they recycle today. Suggestively, those who perhaps started for other reasons, such as that it was arranged for, also have adopted ideological reasons over time. This indicates that the EI has not crowded out the initial reasons for recycling and replaced them with monetary ones. In fact, the range of idealistic reasons was more varied for the motivations today than those they reported to be present when they started to recycle. Other ideological reasons for recycling today included consideration for not only the environment but for society, future generations and that it is 'right'. However, one cannot be certain whether these are the reasons that make them recycle more or whether they are included as reasons, where another may be the dominant reason; such as saving money. Nevertheless, it can be concluded that the EI has not reduced the norms based motivations for the majority. In terms of the quarter of the sample who said money was an *additional* reason, one cannot be certain whether it is a dominant one or not. Even by looking at their behavioral response to the EI, one cannot determine whether crowding out has occurred as one is not able to effectively check which motivation is causing the behavior; whether a shift in the

motivation that drives the behavior has changed or not. However, the interview results suggest that the EI has not caused participants to have lost their initial motivations.

The notion that recycling is 'right' and that it is a reason why somebody recycles is a notion the neoclassical economic theory refutes. It would in any case have to entail that it was right for maximizing the individual's utility. Branches of the neoclassical economic theory suggest that utility can also be gained by internal reward, which will be further discussed below. Meanwhile, the classical institutional economic theory views preferences as being influenced by the institutions in place. So if it is the norm to recycle and authorities have arranged for it, it is also the 'right' thing to do. For some, this is reason enough to engage in a behavior, though the neoclassical economic theory is not accepting of that notion.

7.2 Effects of EI on recycling behavior

In order to evaluate whether the EI an optimal instrument to use to increase recycling, one must look at the changes it caused in actual recycling efforts. There were two practical aspects to recycling behavior that were considered here. One was the frequency in delivery of unsorted waste, and the other was the recycling efforts; whether the EI had made the participants be more thorough in sorting out different materials or started to recycle a material they did not before.

Did the EI cause an increase in recycling as it was intended to? Based on the data on kilos of unsorted waste delivered per person over time, the EI caused an initial drop in the three municipalities. In two of the municipalities the trend of a reduced amount of unsorted waste is turning, which suggests that the effects of the EI are short term. The interviewees were asked if the EI caused them to increase their sorting efforts and only a quarter of the sample said it did. The introduction of the EI caused 26% of the sample to increase their recycling; 9.7% started to recycle a new material while 16,1% increased their sorting efforts. The question is then what caused them to increase their recycling efforts and not the majority of the sample. During the analysis on interview data, three factors that influence the effect the EI had became apparent. One was the perception of the price of each delivery; another was whether the EI was viewed as a punishment or as a carrot. The last apparent mediator is whether the incentive was perceived as fair or not.

45% of the interview sample mentioned the price and what they thought of it. Half of those who had increased their recycling efforts mentioned price, all of which thought the price was too high. As one might suspect, saving money was reported to be one of the main reasons for recycling among these individuals. This is most likely a main reason for why they increased their recycling efforts. Those who stated the price was not high enough to make them care enough did not increase their sorting efforts. This can be explained by the neoclassical economic theory with that the required time and effort to recycling may outweigh the price of delivery. Nevertheless, the majority of the total sample said that the price was not of importance to their recycling behaviors and 91.6% of these did not change their sorting efforts. These results are surprising when considering the neoclassical economic theory. Surely, people would want to avoid the extra cost of delivery if they could, or at least try to? But here, the price is said to not be of importance. Why? Considering the classical institutional economic theory, recycling is arguably in the 'We' rationality, so trying to cause a change in behavior using an instrument that is supposed to appeal to the 'I' rationality may not give the results one might have expected. How the price is viewed often reflects what effect the EI has on recycling behavior. But what is it that makes one person view the price as too high, and the other that the price is too low?

Whether the EI was perceived as a punishment or as a carrot seem important to what effect it had on recycling behavior; alternatively, one's behavior guided the perception. The causal direction is not certain; however, in this case it is assumed that the perception causes the behavior. 45% of the sample viewed the EI as a carrot and they made up 62.5% of those who increased their recycling. These individuals would then have a positive view of the arrangement. On the other hand, 22.5% perceived the EI as a punishment of which only 25% increased their sorting efforts, who also reported saving money as a main motivation for recycling today. None of the 25.8% who were neutral to the EI changed their sorting efforts, so for these individuals the EI did not affect them. In terms on utility function, when the EI is viewed as a carrot, it is a benefit, and when viewed as a punishment, it is a cost. To find out why the same instrument can be viewed so differently, one must consider psychological aspects of the equation. Andreoni's theory of warm (1990) glow suggest that internal rewards, which are linked to pro-social voluntary behavior, are likely to play an important part in recycling behavior. When the EI is felt as a punishment, one does not experience the internal rewards that are important for voluntary behavior. The set up of the system might contribute to the view of the incentive as a punishment; that the invoice shows *added* costs is a signal

that one is behaving anti-socially, and is being frowned upon. For those who might feel like they are doing what they have the capacity to, this is likely to be felt as unfair, which many of those who perceive the EI as a punishment did. As the intrinsic motivation theory (Deci, 1971) suggests, an EI that is seen as a signal that one is doing the 'right' thing may strengthen the behavior. It might be that those who were able to recycle more view the EI as a carrot and those who view the EI as a carrot are more likely to increase their recycling efforts. However, if it is seen as conditional on the individual's performance, the EI can weaken the intrinsic motivation. This might be the case for those who view the EI as a punishment; they perhaps tried to increase their recycling but still found themselves with several added costs on the invoice sent by the renovation company, signaling that their efforts were not 'good enough'.

Nobody decreased their recycling efforts, which *suggests* that there has not been a case of crowding out. However, those who view the EI as a punishment may have lost a form of intrinsic motivation, but this study is not able to conclude if it had. One cannot be certain whether crowding out has taken place or not by looking at behavior alone. An individual may have recycled as much as one had before, but had a change in motivations for doing it.

Fairness was not included in the interview guide, but 43% of the total sample mentioned fairness; 22.5% thought it was unfair and 19.3% thought it was fair. The renovation companies use EIs to comply with the PPP, which is one of the key principles in Norwegian environmental law and policy, and to make the costs fairer. All of those who thought it was *fair* mentioned that very reason; in addition to that it 'made other people recycle too'. Most of those who view the EI as fair view it as a carrot; none perceived it as a punishment. Those who view it as a punishment reported rather that the EI was *unfair*. Hence, there is a connection between perceived fairness and the perception of the EI. This is consistent with a study by Thøgersen (1994) where he found that attitude towards the fee is influenced by equity and perceived effectiveness in reducing the problem. As the perception of the EI is relevant for what effect it had on recycling behaviors, fairness is potentially a root of the perceptions and reactions. The unfairness mainly encompassed that it poses as a burden to young families who have no choice but to deliver diapers every week. Young families are often already under financial pressure, so it becomes a matter of principle of that it is not right to force an extra cost upon them. In a democratic country like Norway, fairness is a valued and protected norm of conduct; making this one way that norms influence recycling. Again, that recycling is in the 'domain of morality' and within a 'We' rationality is shown. Bearing

in mind fairness towards others indicates that it is not only the interests of oneself in terms of maximizing own utility that are considered, as the neoclassical economic theory will have it.

The main effect that the EI had was on the participants' delivery habits. This is in line with the predictions of both the economic theories, as anybody with the ability to would adapt routines in order to save money. Note that this is about the routine of taking out the trash, *not* recycling behavior. 61.3% of the sample decreased their number of deliveries of unsorted waste. This reduction in deliveries does not necessarily reflect an increase in recycling as only 57.9% of those who reduced number of deliveries actually increased their sorting efforts. The remaining 42.1% of the participants who reduced their deliveries reported that instead of taking the bin out for delivery every week, they wait until the bin is full now that each delivery cost money. Hence, a large portion of those who decreased their delivery, avoiding the extra costs, did not actually increase their sorting efforts. Moreover, 38.7% of the participants did not decrease their deliveries at all, indicating that the EI did not have any effect on recycling behaviors for a good part of the sample. The neoclassical economic theory predicts that an EI will cause a decrease in deliveries because utility is constantly calculated upon and one always acts to maximize own utility, so this finding is difficult for this theory to explain. Reducing the number of deliveries arguably does not require large amount of effort as one spends less time and effort taking the bin out for delivery. However, it could be that the effort in thinking about whether one needs to deliver this week or whether one can wait until next week, or changing a habit, outweighs the cost of the delivery. At which point, an EI is not efficient in altering behavior.

The EI caused an unexpected effect on delivery behavior. In order to avoid the extra costs of delivery, 4 participants had started to throw the unsorted waste elsewhere in order to get rid of it. Two of these delivered the trash to the renovation station that takes a fee for accepting trash, which seems to be against the purpose of avoiding extra costs. Perhaps they have calculated the fee for delivering unsorted waste in at the renovation company to be lower than the delivery at home costs. Of the remaining two participants, one started to recycle at the petrol station in a failed attempt to reduce his number of deliveries. Meanwhile, the last participant of the 4 was the only who went outside the system of the municipality; he took the unsorted to the container at his cabin hours away. If this is something other individuals resort to in order to avoid the cost of delivering the unsorted waste, then it may seem as though the amount of unsorted waste is going down in the municipality, when in reality it is going to another one. The neoclassical economic theory concept of maximizing own utility can

explain this behavior, as these individuals attempt to find way around the system in order to save money; possibly because they find themselves unable to reduce the number of deliveries. However, storing and transporting unsorted waste to the cabin hours away is arguably not the most beneficial solution in terms of maximizing own utility considering the time spent and fuel costs.

7.3 Dynamics between the economic incentive, feelings and sense of duty

This study looked at how duty as well as positive and negative feelings as seen in the SEM analysis influence recycling. The aspects of feelings are limited to those that may reflect the norms held by the agent. As theorized by Ostrom (2000), adhering to norms stimulates positive feelings such as a good conscience while breaking them stimulate feelings of negative feelings such as guilt.

Starting off with duty, half of the participants thought recycling to be a duty whilst the other half did not. However, the meaning of the term 'duty' varies between individuals but that recycling is a 'personal responsibility' was accepted by 58% of the sample. The SEM analysis showed that there is a strong significant relationship between duty and recycling degree in a setting with an EI present. The findings from the interviews are consistent with that as 62.5% of those who increased their recycling efforts did *not* feel that recycling is a duty. Moreover, 80% of those who increased their *sorting* efforts did not think of recycling as a duty. Therefore, the recycling degree of these before the EI was assumedly lower due to their lack of sense of duty, and when the EI was implemented, they got a motivation to recycle. Indeed, 4 of the 5 who increased their sorting efforts reported saving money as a main reason for recycling today.

The warm glow theory by Andreoni (1990) is included here, as the participants expressed that they experience positive feelings that can be interpreted as 'a warm glow'. As the theory states, the presence of the EI has not eliminated positive feelings as half of the participants did feel positive feelings because they recycle. The presence of pure altruism has long been questioned, since acts that result in warm glow have been criticized as being selfishly motivated. However, some interviewees explicitly stated that they did not recycling *in order* to experience that good feeling. Some added it was rather to *avoid* negative feelings, which is consistent with impure altruism; the individual is doing something right but also gains from it in the form of avoiding negative feelings, or gaining positive ones. Meanwhile, others

admitted that it probably strengthened their recycling behavior. The philosopher and economist Hume wrote something that describes this phenomenon more clearly;

“"They found, that every act of virtue or friendship was attended by a secret pleasure; whence they concluded, that friendship and virtue could not be disinterested. But the fallacy is obvious. The virtuous sentiment or passion produces the pleasure, and does not arise from it. I feel a pleasure in doing good to my friend, because I love him; but do not love him for the sake of that pleasure." (Hume, 1742: 84-86).

This phenomenon of experiencing a ‘secret pleasure’ by doing something that might be considered the ‘right thing to do’ is something the neoclassical economic theory does not accept at any level. Any positive experience or pleasure is part of a utility function, and an individual has evaluated the costs and benefits of carrying out the act. It could be argued that *not* doing what is considered the ‘right thing to do’ poses as a cost and is perhaps why some say they do not recycle *in order* to get those positive feelings. But, morality and norms are not accepted as having an influence on preferences within this theory because it assumes that preferences are stable across time and space (Weintraub, 2002). So a sense of what is ‘right’ and preferring to do what is right, or avoid *not* doing it, does not apply as explanations within this theory. Unless there is a form of social control, by which one could experience social costs by doing what is ‘wrong’. But usually there is no social control in recycling schemes. Especially for materials that must be delivered to shops where nobody can *see* or notice if you recycle the material or not, which one can for collected items since the bins are by the curb on collection day. Meanwhile, the classical institutional economic theory readily assures that norms and morality can influence an individual’s preferences, which may steer them into wanting to do the ‘right thing’ in the ‘We’ rationality where the power of norms, what is expected of you, is strong.

Supporting the notion that positive feeling is not necessarily a *reason* for recycling, a third of the interviewees who said they did not experience positive feelings at all. Yet, they have the same average recycling degree as the rest of the sample. Half of those who increased their recycling efforts are within this category of people who report that they do not experience positive feelings because it is just something you do, or because it is habit. Perhaps these individuals adapt more easily to change, or feel a stronger sense of duty; though the results of the interviews do not lean into either of these potential explanations. Moreover, as predicted

by Ostrom's theory (2000) on feelings as consequences of breaking the norm, 48.4% of the total sample stated that it 'felt wrong' when they threw trash in the wrong bin, and 35.5% felt guilt. Throwing trash in the wrong bin is effectively breaking the norm of recycling in Norway. Nevertheless, over half of the participants did not report that they feel negative feelings as a response to throwing something in the wrong bin. It could be that the EI has reframed recycling into a domain of economy and 'I' rationality in those individuals. Therefore, the experience of breaking a norm is not felt because it might have be in the interest of their own utility to not spend time recycling, such as cleaning up after a large dinner party feeling tired. However, it may still be the case that recycling is in a 'We' rationality, but that throwing waste in the wrong bin once in a while is not considered to be terrible if one recycles most of the time.

According to Frey (1993), a reward that acknowledges the actors intrinsic motivation may strengthen the behavior. One who is 'good' at recycling may view the EI as a reward and increase their recycling behavior, the majority of those who increased recycling efforts view the EI as a carrot. Meanwhile, those who might find it problematic or time consuming to recycle but do their best at it, might experience the EI as a punishment. This would likely lead to a sense of force as one would have to pay even though one 'tries one's best'. In the latter scenario, crowding out of intrinsic motivations is likely to take place according to Frey (1993). However, those who view the EI as a punishment reported the same intrinsic motivations as those that made them start recycling, though three had added 'saving money' to the list of reasons.

As the SEM analysis revealed in the initial study, there is a significant relationship between sense of duty and the experience of feelings. However, negative feelings in the SEM entailed feelings of force which was not the negative feelings expressed during the interviews. Instead 'annoyance' was reported. The results show that more people who think that recycling is a duty experience positive feelings and less of them experience negative feelings. Hence, the connection between adhering to the norm and experience of feelings comes forward. If one does not feel recycling is a duty, it suggests that one does not feel that it is a norm where one is expected to recycle. For the same reason, these individuals do not experience as much positive feelings when they recycle nor negative feelings when they do not recycle as those who feel it is a duty.

There is evidence suggesting that intrinsic gain or maximizing utility is not necessarily critical for recycling behavior. First of all, 25,8% of the interviewees stated that recycling was a natural thing to do, and they did not necessarily have other reasons. Second, only 13% of the interview sample mentioned saving money as a motivation at all. Third, 32.3% of the sample reported that they did not experience positive feelings with the reasoning being that it is just something you do and that it is habit. Therefore, there is evidence of individuals who are not motivated by the EI, do not experience internal reward, but still recycle. The neoclassical economic theory is not entirely able to explain these occurrences. Addressing those who say they do not experience positive feelings because it is habit, this theory could argue that the habit is a measure to minimizing calculative costs, which might be why they do see the EI as a motivation to recycle. But why was the habit developed in the first place? Before EIs, the onset of recycling practices had no sanctioning system; it depended on norms and played on values held by the population, such as keeping the environment clean. Even the one individual who only started to recycle once the EI was introduced, did not necessarily ignore the value behind the norm of recycling; he did not believe recycling contributed to an improved environment. What about those who stated that recycling is 'just something you do'? According to the neoclassical economic theory, one does not voluntarily spend time and effort unless it is to maximize utility. The classical institutional model can however explain it by that the institutions have guided what is 'right' to do, through the norms and signals from authorities.

7.4 Weakening norms

A quarter of the sample indicated that the norm of recycling may be weakened due to the EI as they said themselves or other people would throw trash somewhere else if the price increased. This suggests that the PBTB fee system is pushing recycling to a domain of economy, where breaking the norm of recycling is justified due to that the renovation costs are perceived to be too high. Two participants also said they might *reduce* their recycling if prices were increased because it would make them not care anymore. Moreover, there were four participants who threw their trash elsewhere, in an attempt to avoid the costs of deliveries. For these individuals, the EI has reframed recycling from a domain of morality to a domain of economy, as the involvement of money and their unwillingness to 'pay to deliver trash' cause them to search for a way around the system. Note that those who felt this way are those who view the EI as a punishment, neutral or both punishment and carrot. None of those

who view the incentive as a carrot consider going outside the norm, which may be due to two reasons; the first being those who already recycled a lot and did not require weekly deliveries, as 64% of those who view it as a carrot did not change their recycling efforts. The second is that they took the carrot and make an effort to recycle more to reduce deliveries. Those who do not view the EI as a carrot, might have resorted to the alternative of saying they or others will go outside the system instead of increasing recycling even further because they do not believe recycling has meaning; at least not in the ideological sense which will be further discussed below. These issues may in combination weaken the norm of recycling by discrediting the intentions and meaning behind it. Past studies have found that perceived social norms influence personal norms and consequently they influence pro-environmental behavior (Thøgersen, 1994; Nordlund & Garvill, 2002). Personal norms, which are closely linked with intrinsic values, also influence whether one experiences intrinsic rewards which in turn is linked with everyday conservation behavior (De Young, 1985). Hence, if the perceived social norm is weakened, these links would likely weaken with it and cause a reduction in recycling on a long term scale. This is in line with the conclusions of Berglund (2003) who implied that an EI can cause people to feel the norm is redundant and therefore weaken its effect.

According to the norm activation theory by Schwartz (1977), knowledge of the consequences of a behavior is vital in the activation of a norm. While the EI may not have crowded out the motivations people have to recycle, it may have discredited that recycling fulfills its purpose. 25.8% of the interview sample expressed that they believe recycling is about money and not the environment any longer. Moreover, 54.8% of the interviewees stated they were unsure the recyclable waste *actually* gets recycled, and question whether recycling contributes to the environment. Those who are unsure make up 75% of those who increased their recycling efforts, suggesting that the EI became the dominant reason they recycle, since they did not believe recycling contributed to the improvement of the environment. As found by Thøgersen (1994) if recycling is not believed to benefit the environment then one is less likely to recycle.

The issue of uncertainty is an important issue to consider further, as it is likely to be the source as to why some individuals to do not recycle and hence the perceived need for an EI. Indeed the EI had a positive effect on those who did not recycle and needed a reason to do so, because they do not believe it benefits the environment. It would probably be more valuable on a long term scale to focus on reducing this uncertainty. If the uncertainty is not addressed and corrected, the negative associations that some have with the EI, such as: unfairness; that

some use it as justification to go outside the system; that it discredits the intentions behind recycling schemes, which may further enhance uncertainty, will most likely influence the normative strength of recycling in the long run.

7.5 Is the economic incentive an optimal solution?

Due to the potential damage it poses to recycling norms, that has taken a long time for a society to develop, one must ask; is it worth it? There is no way to sanction whether household recycling policies are being followed, so the voluntary nature of recycling is vital to its existence as we know it. The involvement of money seems to have caused mistrust in that recycling is for the environment, and poses a threat to the frame of morality that recycling is currently within as respondents said they or others would go outside the system if prices increased, or that they understood those who did today. These are signals of the environmental norm on disposal of trash weakening. It is socially not acceptable to throw trash in the forests of other inappropriate places. But the above suggests that it would be understood and resorted to for many. As their references to go outside the norm concerns the delivery of unsorted waste, their efforts to recycle the materials they have recycled throughout the years would not necessarily be reduced. But, as two participants said, they might reduce their recycling because of the price of the EI will make them care less; reframed away from a domain of morality.

Though the interview data did not suggest crowding out of initial motivations to recycling, particularly the one of wanting to contribute to the environment, the SEM analyses did. In the SEM of the PBTB fee system, the significance of duty to recycling degree was higher than in the SEM of both fee systems. Also, in the PBTB fee system, positive feelings and the motivation ‘contribute environment’ was not significant, which it was in the SEM analysis for both. This indicates a loss of the motivation to contribute to the environment and positive feelings doing so, instead there is an increase in dependency on sense of duty in a setting with an EI present. However, as mentioned earlier, none of the interviewees who had said the environment was a reason they started to recycle left it out as a reason for recycling today, so the data from this study do not suggest crowding out. Then again, the importance of that reason, or dominance, may have altered which there is no way of knowing if happened from these data.

The interviews suggest that general reframing to a domain of economy has not occurred, yet. 12% of the interview sample mentioned the Norwegian expense policy, consisting of 4 of the 5 who viewed the incentive as a punishment. However, they reported the environment as a main motivation throughout. In addition, only 35.5% of the sample mentioned monetary motivations for recycling. Instead, there seems to be a conflict present due to that the incentive and the domain of morality that recycling is within, do not match. Perhaps those who do not 'give in' to a reframe into a domain of economy, and maintain a domain of morality state of mind, are those who view the incentive as a punishment. Suggestively, the EI does not 'match' the "rules of conduct" in the domain of morality and therefore cause negative perceptions of the EI and is why there is a threat of weakening norms.

8 Conclusion and recommendations

The aim of this thesis was to increase our knowledge and understanding of what effects EIs have on recycling motivation and recycling behavior, as it is increasingly being used as an instrument to encourage pro-environmental behavior. Consequent to the preliminary results from an initial study, this paper also investigated how sense of duty, positive and negative feelings influence recycling in a setting where an EI is present. In order to do this, 31 in-depth, semi structured interviews were done with individuals in detached households in three different municipalities in Norway. To get an understanding of the background of the introduction of the EI, structured interviews were also conducted with representatives from the renovation companies and the municipality offices. In addition, the capabilities of the neoclassical economic theory and classical institutional economic theory in explaining the findings have been discussed and so concluding remarks will be made in this chapter.

8.1 Effect on motivations

In light of theories and empirical studies that provide evidence for crowding out as a response to EI implementation the first research question asks: What effect has the economic incentive had on motivations to recycle? Answering this question would also contribute to our knowledge of what motivates individuals to recycle, which was one of the objectives. There were various motivations given to start recycling, but the main ones were the environment, that it was arranged for and that it was natural. That it was arranged for indicates the importance of convenience, as found in previous studies, and that residents are given signals from authorities of that this is how it should be done. That recycling was 'right' and that it was 'natural' to start recycling indicate that there was not necessarily a calculation of utility made. In combination with the finding that some did not hold positive nor negative feelings, Hodgson's theory (1988) of that some habits and morals are learned at a young age is given support.

Crowding out of initial and intrinsic motivations does not seem to have occurred, as the motivation 'contribute environment' was reported to be a reason for recycling today by 87% of the sample whereas it was a motivation to start recycling for 58%. The motivations to recycle today were more varied providing a blend of motivations based on social, biospheric and egoistic values; values categorizes as in the ecological value theory (Dunlap & van Liere, 1978, in Jackson, 2005). Contrary to the predictions of the neoclassical economic theory, only

4% of the sample mentioned saving money as a main reason for recycling today, while 9% said saving money was a reason, but not the main one. Hence, based on the self reported reasons for recycling, monetary motivations have not crowded out the initial motivations. Even though, one cannot be certain of the dominance of a motivation in a behavior; the fact that the majority of the sample did not even mention saving money as a reason at all suggests that the norm based motivations are maintained and that the EI is not consciously recognized as a reason to recycle.

8.2 Effect on recycling behavior

The second research question was: What effect has the economic incentive had on recycling behavior? Neoclassical economic theory is the basis for mainstream economics and therefore policies do assume an 'I' rationality. It predicts that there will be an increase in recycling, because every individual wants to maximize own utility. However, only 25.8% of the interview sample elevated their recycling efforts, by either increasing their sorting efforts or starting to recycle a new material. The main effect was that 63.3% of the interviewees reported to reduce the frequency by which they deliver the unsorted waste. To do so, individuals waited until the bin was full before taking it out for collection. Most of those who did increase their efforts viewed the EI as a carrot, while a couple viewed it as a punishment. The perception might be influenced by perceived fairness of the EI, indicating that norms play a dominant role in the sphere of recycling. The results here provide evidence for that recycling is more within a 'We' rationality for the majority, especially as issues as fairness were brought up. Moreover, the majority of those who mentioned the price said that money did not play a role in their recycling efforts, which indicates that recycling is still generally in the domain of morality.

Furthermore, looking at the data on amounts of unsorted waste in each municipality, the initial reduction in unsorted waste that followed the implementation of the EI is leveled out as the years go by. Hence, the effect of the EI is suggestively short term. However, considering that there is a general annual increase in waste production the increase in unsorted waste may be partly due to that. Nevertheless, around 75% of the respondents reported that the EI did not cause them to increase their recycling efforts, so it arguably has not created a large reduction in unsorted waste. In the face of this, one must consider the long term effects the negative

unexpected consequences have on the norms of recycling and so whether EIs is the optimal instrument in encouraging long term increased recycling.

8.3 Duty and feelings

The third research question was: In what ways do duty and feelings influence recycling in a setting with an EI present? As predicted by Ostrom's theory (2000) of feelings as reflections of one's adherence to a norm, 51.6% of the sample experienced positive feelings when they recycled, of which some believed their experience of positive feelings strengthened their recycling, but others made it clear that it was not what makes them continue to recycle. As the theory of warm glow states, positive feelings are an added positive aspect and the presence of an EI has not removed it as several respondents still feel that 'warm glow'. Moreover, 48.4% felt 'wrong' if they threw trash in the wrong bin, while 35.5% felt guilty doing so. These affective responses may act as a corrective mechanism and play part in maintaining the participants recycling levels. However, the majority of the participants did not experience negative feelings and almost half of the participants did not experience positive feelings by recycling. These results suggest that feelings are not necessarily a dominant aspect in recycling behaviors, but that it has its various influences one those who do experience feelings connected to their recycling practices. Sense of duty is not essential to recycling either as 51.6% of the sample did not see recycling as a duty while the remaining 48.4% did. However, 58% thought recycling is a personal responsibility. Nevertheless, the recycling practices of some individuals may have been low due to lack of sense of duty before the EI came into place as 62.5% of those who *increased* their recycling efforts thought recycling is *not* a duty. For such individuals, an EI is effective in increasing their recycling degree. However it may be the uncertainties surrounding the worth of recycling that was the cause of not recycling to their best abilities before the EI.

8.4 Undesired consequences of the economic incentive

Having compared the two SEM analyses of the initial study, where the significance of certain variables changed in the PBTB fee system setting, the final research question was: Has the economic incentive influenced the norms surrounding recycling? 25% of the sample expressed that they or others would go outside the system if prices went up. In this way, the EI could be used as a justification for going outside the system and norm. Moreover, a fourth

of the sample believes that somebody is making a profit of their efforts to recycle. If recycling is supposed to be for the environment and not for people or companies, the idea of money making discredits the intentions behind recycling. The interviews further indicated that the mismatch between an EI, which belongs to a domain of economy and 'I' rationality, and recycling, which belongs to a domain of morality and 'We' rationality is the cause of conflict. Even though nobody *decreased* their recycling, there are threats of that happening if prices increase. At that point, recycling could be shifted into a domain of economy. Furthermore, 75% of those who recycled more due to the implementation of the EI are unsure if the material they recycle actually gets recycled in the end, indicating that they are not lacking the values that those who recycle have. Rather, they do not see recycling as worthwhile if it gets mixed anyway. Moreover, a third of the sample does not believe recycling contributes much to the environment, which may be partly due to that the money aspect causes doubt on that recycling is a voluntary act that is performed for the environment. Such beliefs and uncertainties about the consequences of recycling would be a hinder for norm activation as theorized by Schwartz (1977). Hence, the root of why some people do not recycle as much as they can, may be that they do not believe the end results of their efforts is that they have contributed to an improved environment.

8.5 Neoclassical vs. classical institutional economic theory

In light of that the neoclassical economic theory does not recognize that preferences can change according the institutional setting, or that they can be influenced by norm; the fifth research question of this study was: Is the neoclassical economic theory able to explain all the findings that will be revealed in this study compared to the abilities of the classical institutional economic theory? Throughout the study, this theoretical framework has been shown to have its shortcomings as its ability to explain the findings has been described. The classical institutional economic theory has had the upper hand in being able to explain the results, as it recognizes the reciprocal relationship between norms and self, and that rationality is not limited to 'I', but also 'We'.

How one chooses to look upon the results are influenced by which theory one chooses to look through. A different theory gives a different perspective. Assuming the assumptions of the neoclassical economic theory, that the EI cause 25% of the sample to increase their recycling efforts is a success. But, considering that preferences can change as the institutional economic

theory does, one will also see that the norms that are the basis for why people recycle may change as norms may weaken and shifts into domain of economy may occur due to the EI. Arguably, the shortcomings of the neoclassical economic theory show that it is not a theory that can be used to predict and explain real life as well as the classical institutional economic theory can.

8.6 Final thoughts and recommendations

Policy makers may believe that the prospect of saving money, though many saw it as extra costs, will act as an added positive dimension to recycling. This study shows it is not that clear cut. Suggestively, a better solution to motivate increased recycling would be to, first of all, reduce the uncertainty surrounding what happens to the material. Second of all, avoid mixing incentives that belong to the domain of economy to activities within private households that are done on a voluntary basis that belong to the domain of morality. If those who do not believe recycling benefits the environment and view the EI as a punishment begin to throw trash in inappropriate places, such as the forest, and since the EI is viewed as unfair by 53.8% of those who mentioned fairness, people could start to 'understand' why some resort to that option; as some participants expressed. Hence, the norm would change as it is socially unacceptable to throw trash elsewhere at present time. In places where norms have been established, implementing an EI poses a risk of shifting recycling into a domain of economy and of weakening recycling norms, which is not the ideal solution due to the undesirable consequences. Instead, the residents should be assured that their efforts help the environment.

If one still wishes to use EIs, there are various changes one can make in order to improve the effects. First of all, one must address the issue of that it is unfair for young families to bear the extra costs when there is no good way for them to reduce deliveries. One method would be to give no extra cost to those with children who wear diapers, and rather spread the extra cost in the flat annual fee. As none of those who view the EI as a carrot expressed that they thought it was unfair, addressing this issue will likely cause more to join this category. Second of all, the invoice itself should be changed to subtracting a delivery cost from a max total rather than adding costs of deliveries. This way, the sense of being punished can be reduced and a sense of saving money would be strengthened.

Future research would benefit from conducting quantitative longitudinal studies that collect data on waste amounts from each household before and after implementation of an EI, in addition to conducting interviews before and after to investigate whether issues such as uncertainty about where waste ends up are enhanced by the EI or whether this was a concern before as well.

It is important to recognize the social and psychological aspects in the attempts to change behavior, and not rely too heavily upon technical and monetary instruments. EIs attempt to bring out the 'I' rationality in people, but is this what we want? General politics and long term policies should support and further strengthen the good norms and values that are held in a society, but as shown by this study EIs might be a step in the wrong direction.

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APPENDIX I – Methods of the initial study

The initial study refers to the data collection and analysis done by Marit Heller prior to the onset of the current one in this paper. Because of its impact, it is of relevance for the reader to understand how this stage was done, as well.

Data collection

Marit Heller sent out questionnaires by post to households in six municipalities with different fee systems for household waste. The reason for this is that she is to compare the two institutional settings. Three of these are municipalities that have a PBTB fee system for household waste, namely Os, Askøy and Kristiansand. The remaining three are municipalities with a flat annual fee system, namely Askim, Kragerø and Eidsberg.

The questionnaire

The questionnaire was written on the basis of extensive research by Marit Heller into the literature on recycling and the optimal methods in constructing questionnaires. It consists of 30 questions that had different formats; some were constructed using a Likert scale format, some with a number of statements one can pick, and some were left blank for participants to fill in. All except the latter type of questions are closed ended, making them easily quantifiable. However, the disadvantage with this is that one does not get the individuals personal and meaningful response (Please see appendix II for copy of questionnaire).

The first page of the questionnaire informs the participant of the purpose of the study, that their information is treated confidentially, that they have received an ID number and the reasons for this, that they will remain anonymous, and that their participation is voluntary. The questionnaire also referred participants to a link that they could go to if they wished to fill out the questionnaire online, in case they found this easier.

The questionnaire was sent out autumn 2010. Those who had not responded by after Christmas were called by phone in late January/February 2011 and asked if they were willing to fill out the questionnaire. They had the option of having it sent by post again or have it sent via email with a link.

Data analysis

A t-test was used to assess whether the means of the two different groups were statistically different. Such a test is often used, as in this case, to test whether a sample is representative of

a population. Its assumptions are that the two groups have approximately equal variance and that the two groups are independent of each other. The test was done using Microsoft Excel.

An exploratory factor analysis was done to find out which items, or themes, were linked together. When using questionnaires, factor analyses help identify what items make up a theme, or factor (Howitt & Cramer, 2003). This is particularly useful when there are a large number of items in a questionnaire. These factors were then made into variables by grouping responses that logically made up a 'theme'; these were interpreted and created by Marit Heller. For example, the factor analysis clustered together the questionnaire items: 'For me, recycling of waste at home has become a habit', 'I find it easy to recycle waste at home', and 'I find it meaningful to recycle waste'. The last item was removed as it was not the same theme as the previous two, which made up the variable 'Habit'. At a later stage, some items within some variables were removed or added with some input from myself and our supervisor Arild Vatn. An outline of the items within each variable is outlined in chapter 4.

These variables enabled Marit Heller to conduct a Structural Equation Modeling (SEM) analysis. This analysis calculates relationships between variables, whether they are negative or positive and whether the relationship is significant. Three SEM analyses were done. One on all the data gathered from all the municipalities, a second on the municipalities with a flat fee system and the third on the municipalities with a PBTB fee system.

Appendix II – The questionnaire

Kjære deltaker,

Vi viser til brevet du har fått og benytter først anledningen til å takke deg for at du tar deg tid til å delta!

Målet med undersøkelsen er å samle kunnskap om hva folk mener og gjør knyttet til sortering av avfall i hjemmet. Undersøkelsen er en del av prosjektet "Miljøpolitikk og adferd" ved Universitetet for miljø og biovitenskap i Ås og er finansiert av Norges forskningsråd.

Vi har meldt undersøkelsen til Personvernombudet for forskning og vi understreker at alle data vil bli behandlet konfidensielt. For mer informasjon om personvern i forskning se www.nsd.uib.no/personvern/

Av praktiske årsaker har hvert spørreskjema et ID-nummer som er koblet til husstandens adresse. Dette ID-nummeret vil fjernes når undersøkelsen er ferdig. Alle resultater vil være anonymisert.

Vi minner om at det er frivillig å delta. Utfyllingen av skjemaet regnes som et samtykke til å delta i undersøkelsen. Å svare på spørsmålene vil ta deg om lag 15 minutter.

Dersom du har spørsmål om formuleringer i skjemaet eller om undersøkelsen, kan du kontakte Marit Heller på telefon: 995 11 616 eller per e-post: marit.heller@umb.no

En kjempestor takk på forhånd for deltagelsen!!

Vennlig hilsen

Arild Vatn, professor
Noragric, UMB

Marit H. Heller, stipendiat
Noragric, UMB

1) Vær vennlig å skriv inn ID-nummeret du fikk i brevet her. Har ID-nr kommet bort kan du ringe eller sende sms til 995 11 616 så får du det oppgitt på nytt.

2) Kan vi kontakte deg i etterkant for et oppfølgingsintervju? Hvis du svarer ja vil vi ta kontakt pr. telefon for å avtale tidspunkt. Intervjuet vil ta omlag 45 min.

Kryss av for ja eller nei:

Ja ☐

Nei ☐

3) Hvor fornøyd er du med den praktiske tilretteleggingen av avfallssortering i kommunen din?

Kryss av for riktig alternativ:

- 1 veldig misfornøyd
- 2
- 3
- 4
- 5 veldig fornøyd

4) Hva slags type renovasjonsgebyr(avgift) er det i din kommune?

- Et fast årlig gebyr
- Todelt gebyr: en del som er fast og en del som varierer etter hvor mange ganger restavfallet hentes
- Et gebyr som varierer etter hvor mange kg restavfall som hentes fra husstanden
- Vet ikke

5) Hvor stor andel sorterer du vanligvis av det avfallet som hentes hjemme hos deg?

Det vil si matavfall, papir/papp, drikkekartonger og plast.

Ingenting Litt En del Det meste Nesten alt Alt

6) Hvor stor andel sorterer du vanligvis av følgende avfallstyper?

	Ingenting	Litt	En del	Det meste	Nesten alt	Alt
Bioavfall til henting						
Bioavfall til egenkompostering						
Papir/papp						
Drikkekartonger						

7) Hvor stor andel bringer du vanligvis til returpunkter eller avfallsanlegg av følgende kategorier?

	Ingenting	Litt	En del	Det meste	Nesten alt	Alt
Plast						
Glassemballasje						
Metallemballasje						
Tekstiler (Fretex)						
Farlig avfall						
Elektrisk/elektronisk avfall						

8) Normalt sett hvor full er dunken for restavfall når den settes frem for henting?

- Tom
- Kvart full (1/4)
- Halvfull (1/2)
- Trekvart full (3/4)
- Helt full (1/1)

9) Hvor mange personer består husstanden av?

Skriv svaret her: _____

10) Hvor mange personer er 5 år eller eldre i husstanden?

Skriv svaret her: _____

11) Hva motiverer deg til å sortere avfall? Vurder følgende påstander og sett ett kryss pr. linje.

	Helt uenig 1	2	3	4	Helt enig 5
Jeg ønsker å se på meg selv som en ansvarlig person					
Oppfordringer om sortering fra andre i familien					
Jeg ser det som min plikt å sortere avfallet					
Jeg bør selv gjøre det jeg mener at andre bør gjøre					
Jeg sorterer avfall for å bidra til et bedre miljø					
Jeg ønsker at andre skal se på meg som en ansvarlig person					
Oppfordringer om sortering fra kommunen/avfallsselskapet					
Jeg sorterer avfallet mitt fordi det lønner seg økonomisk					
God praktisk tilrettelegging for sortering					
Informasjon om positive miljøkonsekvenser fra sortering					
Å spare penger gjennom å redusere antall hentinger av restavfall					

12) Er det andre ting enn det som er nevnt her som motiverer deg til å sortere avfallet?

Skriv svaret ditt her:

13) Hva gjør deg mindre motivert til å sortere avfall? Vurder følgende påstander og sett ett kryss pr. linje.

	Helt uenig 1	2	3	4	Helt enig 5
Å sortere gjør ikke noe til eller fra for miljøet	○	○	○	○	○
Andre jeg kjenner sorterer ikke avfallet sitt	○	○	○	○	○
Jeg synes at sortering av avfall tar for mye tid	○	○	○	○	○
Den praktiske tilretteleggingen for sortering er ikke god nok	○	○	○	○	○
Jeg synes ikke at andre skal bestemme over hva jeg gjør med avfallet mitt	○	○	○	○	○

14) Er det andre ting enn det vi har nevnt her som gjør at du blir mindre motivert til å sortere avfall?

Skriv svaret ditt her:

En handling som det å sortere avfall kan være knyttet til bestemte følelser. Vi vil derfor be deg om å tenke over om sortering av avfall fremkaller noen av de følelsene vi beskriver nedenfor.

15) Hvilke av følgende følelser knytter du til sortering av avfall? Vurder følgende påstander og sett et kryss pr. linje.

	Helt uenig 1	2	3	4	Helt enig 5
En følelse av tilfredsstillelse	○	○	○	○	○
En følelse av selvstendighet	○	○	○	○	○
Jeg føler sortering av avfall som tvang	○	○	○	○	○
God samvittighet	○	○	○	○	○
Gir meg en følelse av å bli kontrollert	○	○	○	○	○
En følelse av stolthet	○	○	○	○	○

16) Er det andre følelser enn de vi har nevnt her som du knytter til sortering av avfall? Skriv svaret ditt her:

I din kommune er avfallsgebyret differensiert. Det vil si at hver husstand betaler for pr. henting av restavfall (grå dunk) og for pr. henting av bioavfall (brun dunk), utover de obligatoriske 12 hentingene i året. Hver enkelt husstand kan dermed påvirke avfallsgebyret gjennom hvor mye avfall som sorteres.

I mange andre kommuner kan man ikke dette og betaler i stedet et fast gebyr. Alle husstander betaler altså det samme uansett hvor mye eller hvor lite en sorterer.

Vi vil nå gjerne vite mer om hva du mener om det differensierte avfallsgebyret som dere har i din kommune.

17) Jeg mener gebyrordningen i min kommune er ...

	Helt uenig 1	2	3	4	Helt enig 5
...dårlig, fordi sortering er noe en uansett bør gjøre og ikke for å spare penger	○	○	○	○	○
...bra, fordi et gebyr en kan påvirke gir meg mulighet til å spare penger	○	○	○	○	○
... bra, fordi de som er lite flinke til å sortere avfallet sitt må betale mer	○	○	○	○	○
... dårlig, fordi husstander med mange personer straffes økonomisk	○	○	○	○	○
... bra, fordi jeg mener det bygger opp under en god vane (sortering av avfall)	○	○	○	○	○
...bra, fordi det virker som en økonomisk gulrot	○	○	○	○	

18) Er det andre forhold rundt gebyrordningen i din kommune du har lyst til å kommentere? Skriv svaret her:

Du betaler i dag kr 33,81 pr. henting av restavfall (grå dunk, 120 liter). Forestill deg at prisen pr. henting av restavfall reduseres til 10 kr pr. henting.

19) Hvordan ville en reduksjon i pris fra kr 33,81 til kr 10 pr. restavfallshenting påvirket hvor mye du sorterer? Jeg ville sortert:

- ○ mindre
- ○ som før
- ○ mer

Forestill deg nå at prisen pr. henting av restavfall (grå dunk, 120 liter) går opp fra kr 33,81 som i dag til 50 kr pr. henting.

20) Hvordan ville en økning i pris fra kr 33,81 til kr 50 pr. restavfallshenting (grå dunk) påvirket hvor mye du sorterer? Jeg ville sortert:

- mindre
- som før
- mer

Som beskrevet tidligere betaler husstander i mange andre kommuner et fast gebyr i året for avfallet sitt.

Forestill deg at et slikt fast gebyr innføres i din kommune og at du ikke lenger kan påvirke gebyret gjennom hvor ofte du setter frem restavfallet for henting.

21) Hvordan ville et fast avfallsgebyr i året påvirket hvor mye du sorterer avfallet? Jeg ville sortert:

- mindre
- som før
- mer

22) Vurder følgende påstander og sett ett kryss pr. linje

	Helt uenig 1	2	3	4	Helt enig 5
For meg er sortering av avfallet hjemme blitt en vane					
Jeg opplever det som enkelt å sortere avfallet hjemme hos meg					
Jeg opplever det som meningsfylt å sortere avfall					
De jeg verdsetter meningene til sorterer avfallet sitt					
De jeg verdsetter meningene til synes at jeg bør sortere avfallet mitt					

Her stiller vi mer generelle spørsmål knyttet til miljøproblemstillinger.

23) Vurder følgende påstander og sett kryss ett kryss pr. linje.

	Helt uenig 1	2	3	4	Helt enig 5
Vi nærmer oss grensen for hvor mange mennesker jorden kan bære	○	○	○	○	○
Mennesker har rett til å utnytte naturen for å dekke behovene deres	○	○	○	○	○
Når mennesker griper inn i naturen, får det ofte katastrofale følger	○	○	○	○	○
Menneskers oppfinnsomhet vil sørge for at vi IKKE gjør jorden ubeboelig	○	○	○	○	○
Mennesker utnytter miljøet grovt	○	○	○	○	○
Jorden har rikelig med naturressurser hvis vi bare lærer oss å utnytte dem	○	○	○	○	○
Planter og dyr har like stor rett til å eksistere som mennesker	○	○	○	○	○
Naturens balanse er så sterk at den kan stå imot virkningene fra moderne industrinasjoner	○	○	○	○	○
Til tross for menneskenes spesielle evner, er vi fortsatt underlagt naturlovene	○	○	○	○	○
Den påståtte "økologiske krisen" er sterkt overdrevet	○	○	○	○	○
Jorden er som et romskip med svært begrensede ressurser og plass	○	○	○	○	○
Det er meningen at mennesker skal herske over resten av naturen	○	○	○	○	○
Naturens balanse er svært skjør og lett å forstyrre	○	○	○	○	○
Menneskene vil til slutt lære nok om hvordan naturen fungerer til å kunne kontrollere den	○	○	○	○	○
Hvis dagens kurs fortsetter, vil vi snart oppleve en stor økologisk katastrofe	○	○	○	○	○

24) Hvilket år er du født?

Skriv årstallet her:

_____

25) Er du kvinne eller mann?

Sett kryss for riktig alternativ:

___ kvinne

___ mann

26) Hvor lang utdannelse har du?

Sett kryss foran riktig alternativ:

___ Grunnskole

___ Videregående eller yrkesskole

___ Høyere utdanning som universitet eller høyskole

27) Hva slags type bolig bor du i?

Sett kryss foran riktig alternativ:

___ Leilighet

___ Enebolig eller tomansbolig

___ Rekkehus

Annet: _____

28) Hva er din personlige årlige brutto inntekt (før skatt)?

Sett kryss foran riktig alternativ:

___ Mindre enn kr 50 000

___ Mellom kr 50 001 og kr 100 000

___ Mellom kr 100 001 og kr 300 000

___ Mellom kr 300 001 og kr 500 000

___ Mellom kr 500 001 og kr 700 000

___ Over kr 700 000

29) Hva er den totale årlige brutto inntekten (før skatt) til hele husstanden?

___ Mindre enn kr 150 000

___ Mellom kr 105 001 og kr 400 000

___ Mellom kr 400 001 og kr 650 001

___ Mellom kr 650 001 og kr 800 000

___ Mellom kr 800 001 og kr 1 000 000

___ Over kr 1 000 000

30) Hvis du har kommentarer til undersøkelsen kan du skrive de her:

TUSEN TAKK FOR AT DU TOK DEG TID TIL Å DELTA I UNDERSØKELSEN!!

Appendix III – Interview guide

Kommune: _____

Navn: _____ ID nummer: _____

Adresse: _____

Instruksjoner til intervjuer

- *Tenk på intervjuet som at en skal få vedkommendes sorteringshistorie - fra fødsel til grav (i dag).*
- *'Hvorfor' spørsmål kommer i slutten av et spørsmål sekvens.*
- *Påstand og oppfølgningsspørsmål for å oppklare: 'Mener du nå at… (repeter ca det de sa)'*
- *Legg merke til negative tonefall, som kan indikere negative følelser*

Introduser deg selv

"Før vi begynner på selve intervjuet så ønsker jeg bare å understreke at det som dette prosjektet ønsker å finne ut av er hvorfor folk sorterer avfall. Og ikke minst hva som gjør at man ikke sorterer. Altså å forstå litt mer av hvordan folk tenker rundt det å sortere avfallet sitt. Det er mange måter å organisere dette med sortering på og ikke alt passer like godt for folk. Og det er dette vi ønsker å se nærmere på. Vi er ikke interessert i å sjekke hvor flinke folk er til å sortere. Vi er ikke noe sorteringspoliti. Vi er derimot genuint interessert i å forstå hvordan du tenker rundt dette å sortere avfall." Ellers vil jeg gjerne peke på at når vi stiller spørsmål så er vi ute etter hva DU gjør, ikke husstanden, men du som individ, men forstår at det er kan være vanskelig å skille de to"

Jeg kommer til å stille en del spørsmål og noe har du sikkert tenkt på, mens andre ting har du kanskje ikke tenkt så nøye på. Da er det selvfølgelig helt greit å si at dette har du ikke tenkt på eller at du ikke har noe mening om det. Men snakk gjerne høyt med deg selv hvis du er i stuss om hva du tenker eller mener. En tankerekke er like interessant for oss som et ferdig tygd svar.

Først litt relevant chitchat for å varme opp respondenten rundt noen nøytrale temaer og for å danne et bilde av hvem respondenten er:

- Hvor mange er det som bor her?
- Har du bodd her lenge?
- Hvor gamle er barna?
- Er du fra ... (kommunen)?
- Har du bodd i området her lenge?

1. Kan du som individ huske når en startet opp med sortering av husholdningsavfall i kommunen her? Da tenker jeg på sånn sortering der ulike fraksjoner som papir og matavfall blir hentet hjemme hos deg.
    a. Når var det og hvordan fungerte det i starten?
    b. Sorterte du før dette også? (egen adferd før kommunen innførte noe system til hjemmet)
        i. Hva slags materiale sorterte du da?
        ii. Hvordan ble du kvitt det? Hvor leverte du det da?
        iii. Hvorfor tok du beslutningen om å begynne å sortere selv uten et godt system rundt det?
    c. Når du var barn, hva gjorde du og familien da?
    d. Kan du huske hva slags forhold foreldrene dine hadde til avfall og forbruk?
    e. Når sortering startet i kommunen der de hentet avfall hjemme hos deg; Hva slags materiale sorterte dere da?
    f. Hvordan organiserte dere det inne på kjøkkenet? (kan ha allerede vært organisert om de sorterte før systemet kom på plass)
    g. Var det vanskelig å skulle slutte å kaste alt i ett span/bossdunk da du begynte å sortere?
    h. Har det blitt en vane for deg å sortere? Hva med de andre i husstanden?
        i. Hvor lenge vil du si at det har vært rutine for deg? (siden ung alder?)
    i. Hva var viktig for at du/dere utviklet de rutinene du/dere har nå? Er det forskjell mellom ulike medlemmer i husstanden når det gjelder sorteringsrutiner?

2. Kan du huske om det har skjedd endringer i hva du kan sortere siden sortering systemet der avfall blir hentet hos deg kom på plass? Hva består disse av?
    a. Hva tenkte du når denne endringen kom? (mer materiale å sortere, glad/enklere?)
    b. Hva tenkte familien din om det?
    c. Har det vært noen andre endringer i hvordan systemet fungerer?

Hvis de ikke nevner endringer i avgift – hjelp de på vei: Oppsummer 'historien' deres.

3. Denne hente-baserte avgiften, at du må betale for hver gang restavfallet hentes, kan du huske at det ble innført?
    a. Med det nye systemet; endret du rutinene/vanene dine?
        i. Hvorfor forandret du de? (hvis svarer ja)(normer svekket eller indre motivasjoner crowded out?)
    b. Fulgte det med noen begrunnelser for hvorfor de endret avgiften? (Hvis de ikke husker så hjelp de på vei: Så på BIR sine nettsider at den hente baserte avgiften skal virke som en gulrot for å få folk til å sortere mer.
    c. Hva syntes du/tenkte du om denne begrunnelsen?
    d. Har du endret syn på sorteringen etter endringen? (hvis de begynte å snakke om det tidligere, gjør det til et 'oppsummerings spørsmål') Har du blitt mer

positiv eller negativ til sortering? – og i så fall kan du fortelle mer om de følelsene?

e. Gjør den differensierte avgiften at du føler mer eller mindre ansvar for å sortere?
f. Føler du at når du kan betale for det så er det ikke like viktig for deg å sortere det selv?
g. Syntes du pengene virker som en gulrot eller pisk? Altså ser du på det som en mulighet til å spare penger, eller som en slags straff for ikke å sortere?
h. Sorterer du mer eller mindre enn før den differensierende avgiften ble innført?
i. Syntes du det er enkelt å utføre sortering innenfor det systemet kommunen har lagt opp til? Kan du utdype det?
j. Med endringen i avgift; trodde du at du kom til å sortere mer eller mindre enn det du gjør i dag? (Intensjon, ref Schulz)
k. Har du noe ønske om å sortere mer? (ideal goals, ref Schultz)

4. Er det noe irriterende, dumt eller noe annet negativt med denne sorteringa?
    a. Hva er det med sorteringen som fremkaller de følelsene? (at alt skal handle om penger, differensieringen eller praktiske utfordringer?)
    b. Hvis ikke nevner penger: Er det praktiske utfordringer eller det at 'alt skal handle om penger' som gjør at du får de negative følelsene?
    c. Hvordan tror du det påvirker valgene du tar mht sortering?

5. Hvordan ville du ha reagert om det ble innført en kilobasert avfallsavgift? DVS. at du var nødt til å betale en høyere avgift dess flere kilo usortert avfall du leverer?

6. Hvis du er et sted der de ikke sorterer avfall:
    a. tenker du noe over dette da? Altså at det ikke sorteres og i så fall hvordan opplever du det?
    b. Hva tenker du om at andre ikke sorterer?
    c. Er det noen situasjoner eller perioder der du kutter ut sorteringa selv?
    d. Får du den samme følelsen/tenker du det samme når du selv ikke sorterer?

7. Noen rapporterer at de får gode følelser som, god samvittighet, tilfredsstillende, og selvstendighet når de sorterer avfallet sitt.
    a. Føler du noe av det samme?
    b. Og hvilken del av sorteringen fremkaller det?
    c. Hvorfor får du de gode følelsene, tror du?
    d. Hvordan tror du det påvirker valgene du tar mht sortering?
    e. Alt i alt, ville du sagt du var positiv til sortering, eller negativ til det?

8. Hva er viktigst for deg, de positive følelsene eller negative følelsene?
    a. Og på hvilken måte er de viktig?

9. Det er mange som ser det som en **plikt** å sortere avfall;

a. Hvordan tenker du rundt plikt og sortering?
b. Er det en plikt fordi det forventes fra kommunene eller andre at en skal sortere? Eller er det plikt fordi det å sortere er et personlig ansvar og er bare noe man gjør? (Personligplikt/sosialplikt)
c. Er det noen i din omkrets som mener at det er viktig (en plikt) å sortere?
    i. Påvirker det deg på noe måte?

10. Ut i fra de som svarte på samme spørreskjema du besvarte i fjor, så er det mange som har svart at det lønnet seg økonomisk å sortere, hva la du i det? (sjekk på forhånd) Samfunnsøkonomisk? Eller at det lønner seg for deg privat/husholdningen?
    a. Hvis sa 1-2-3-4-lite, spør hva de la i begrepet økonomisk.

11. Hvordan er det med den lokale avisa – hender det at den skriver om resirkulering og avfallstemaer?

12. Vet du om folk i nabolaget ditt sorterer? (normene i lokal samfunnet)

13. Hvor sterkt mener du at sortering av avfall i hjemme bidrar til miljøet? (Mening; om de gjør det kun for å følge samfunnet eller fordi de syntes det er viktig)

14. Tror du at ditt syn på miljø generelt påvirker om du sorterer?

15. Vi har nå diskutert/sett på noen sider ved det å sortere. Kan du til slutt oppsummere de viktigste grunnene til at du sorterer?

Appendix IV – Structured interview guide (municipality representatives)

1. Når kom (*Renovasjonselskapet)* på banen?

2. Hvorfor valgte dere å være del av *(Renovasjonselskapet)*?

3. Hadde dere noe valg til å si at dere ikke ville innføre den hente baserte avgiften som de innførte?

4. Har dere fått noe tilbakemelding fra folket om det?

5. Utifra et mønster jeg har sett, så ser det ut som at kommuner på vestlandet velger å ha den økonomiske insentiven (hente basert avgift), mens de på Østlandet har flat årlig avgift. Kan du tenke deg hvorfor det kan være? Er det kultur forskjeller med at kommuner på Vestlandet ikke startet med sortering like tidlig som Østlandet? Har du noe tanker rundt det?

Appendix V – Structured interview guide (renovation company representatives)

1. Når startet Avfall Sør/BIR, og hvorfor.
2. Hvordan var det tidligere?
3. Hvem eier selskapet?
4. Hvordan er eierandel bestemt?
5. Når kom antall tømminger ordningen?
6. Hvordan var betaling før det?
7. Når begynte sortering av de forskjellige materialene?
8. Når kom glass og metall konteinere?
9. Var det valg for hver kommune om de ville være med på den differensierte ordningen?
10. Får de noe tilbakemeldinger fra folket?
11. **Få tall fra og data om sorteringen**