



# The moderating effect of perceived policy effectiveness on recycling intention



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## ABSTRACT

Currently, recycling is one of the main strategies to reduce the reliance on landfills in Hong Kong, where its landfills will reach their full capacities by the end of the 2010s. In this study, we surveyed 246 people in Hong Kong to examine the moderating effect of perceived policy effectiveness on recycling. According to the results, the perceived policy effectiveness negatively moderated the relationships between subjective norm and recycling intention, as well as those between consequences awareness and recycling intention. The findings provided insightful information for policy makers to shape a more effective recycling policy.

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## 1. Introduction

Over the past three decades, daily municipal solid waste per capita in Hong Kong increased from 0.97 kg to 1.27 kg, this implied that each people in Hong Kong produced 30% more waste (Environment Bureau, 2013). In May 2013, the Government published a blueprint for the sustainable use of resources for the coming decade. It highlighted daily domestic waste generation rate per capita in Hong Kong is the highest among other Asian cities including Taipei, Seoul and Tokyo (Environment Bureau, 2013). The document also illustrated the heavy reliance on landfills in Hong Kong where 52% of the municipal solid waste is disposed of there.

Hong Kong is a compact and land-hungry city (Ganesan & Lau, 2000; Tang, Wong, & Lee, 2007). It has limited and scarce land resources for landfills. As the landfills will reach their full capacities by the end of the 2010s, the Hong Kong Government proposed to expand the three current landfills from 270 ha to 550 ha. However, this drew criticism from both environmental groups and the residents because of the potential environmental impacts (Legislative Council, 2013). In the meantime the Government targeted to reduce the landfilling rate from 52% to 22% by incineration and recycling in ten years' time. It has also planned to mobilize the community to participate in related campaigns (Environment Bureau, 2013).

Waste reduction, reuse and recycling are becoming the key elements of waste management strategies in Hong Kong. They can help in both conserving natural resources and reducing demands for valuable landfill space (Environmental Protection Department, 2010). Among these elements, Chen and Tung (2010) stated that recycling becomes more popular because it can reduce waste and turn waste into usable resources.

Previous researches had examined the Theory of Planned Behaviour (TPB) (Ajzen, 1991) in explaining the factors that influence recycling behaviour (e.g., Oom Do Valle, Rebelo, Reis, & Menezes, 2005; Sidique, Lupi, & Joshi, 2010; Tonglet, Phillips, & Read, 2004). These studies had also drawn policy implications for changing factors influencing the behaviour. The discussion on policy measures stressed how to change attitude, address social norm and facilitate pro-environmental behaviour (Steg & Vlek, 2009). Wan and Shen (2013) proposed the relevance of perceived policy effectiveness to recycling behaviour, however the idea was not empirically tested.

The main contributions of this paper are the examinations of moderating effects of perceived policy effectiveness that explain recycling behaviour. A better understanding of the recycling intention could then be gained for policy formulation.

## 2. Literature review and conceptual framework

### 2.1. Prior study on recycling attitude and behaviour

The Theory of Reasoned Action gave rise to the Theory of Planned Behaviour (TPB; Ajzen, 1991) (TRA; Ajzen & Fishbein, 1980). In aspects such as the dishonest actions of college students

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(Beck & Ajzen, 1991), smoking (Godin, Valois, Lepage, & Desharnais, 1992), driving violations (Parker, Manstead, Stradling, Reason, & Baxter, 1992), technology acceptance (Mathieson, 1991), and the use of public transportation (Heath & Gifford, 2002), attitude-behaviour studies have popularly made use of the TPB. The TPB established the ground for researches on recycling behaviour. As a result, some researchers in this field had used the TPB in their studies (e.g., Cheung, Chan, & Wong, 1999; Davis, Phillips, Read, & Iida, 2006; Oom Do Valle et al., 2005; Oreg & Katz-Gerro, 2006; Sidique et al., 2010; Tonglet et al., 2004; Wan, Cheung, & Shen, 2012). The flexibility of adding variables allowed by TPB, as mentioned by Ajzen (1991), can contribute a lot to explain certain behaviours. Lots of studies on recycling attitude and behaviour suggested adding variables to improve the sufficiency of their respective models.

TPB accounted for three main predictors of behavioural intention: **Attitude** refers to a function of an individual's beliefs towards a behaviour. **Subjective norm** (or social pressure) is the function of the perceived expectations of a person by other individuals or groups important or close to him/her (like friends, peers, neighbours), and his/her motivation to live up to these expectations. **Perceived Behavioural Control (PBC)** is an individual's perception of his or her capability to perform certain behaviours (Ajzen, 1991; Fishbein & Ajzen, 1975). These three predictors had confirmed to be the crucial predictor of recycling intention (such as Barr, Gilg, & Ford, 2001; Kelly, Mason, & Leiss, 2006; Oskamp et al., 1991; Sidique et al., 2010; Tonglet et al., 2004; Vining & Ebreo, 1990).

**Awareness of consequences** and **moral norm** can be incorporated in the study on recycling behaviour (Tonglet et al., 2004). They were proved to be significant predictors of recycling (Chen & Tung, 2010; Tonglet et al., 2004). An individual's concern with personal ethics and social responsibility when performing certain behaviour is known as his/her *moral norm* (Chen & Tung, 2010). The intention to perform recycling would be increased by higher awareness level of desirable consequences of certain behaviour, as explained by Davies, Foxall, and Pallister (2002).

## 2.2. The moderating effect of perceived policy effectiveness

TPB had been proved to be a robust model in explaining pro-environmental behaviour. Previous studies had applied the model and drawn policy implications for changing factors influencing recycling behaviour (e.g. Chen & Tung, 2010; Davis et al., 2006; Tonglet et al., 2004). The discussion on policy implications commonly stressed how to change attitude, address social norm through information and communication campaign, and facilitate recycling behaviour through setting up appropriate and convenient recycling facilities

Wan and Shen (2013) discussed the relevance of perceived policy effectiveness (PPE) and recycling behaviour. The PPE refers to an individual's favourable or unfavourable evaluation on the clarity, adequacy and facilitation of policy measures (e.g. sufficiency of waste separation bins, clarity of guidelines and promotion, etc.). It may function as more than just a direct predictor of behaviour. PPE may also moderate the influence of other variables on behaviour. Wan and Shen (2013) further explained that a policy measure serves as a motivational device: if one perceives a stronger and more effective motivation, the intention to perform certain behaviour will be enhanced.

Suppose an individual carries a favourable attitude towards recycling, but feels that the public authority does not facilitate such action. This individual is likely to have low intention to recycle. On the contrary, if an individual is having a weak attitude towards recycling while under effective facilitation by the public authority, he or she would still have low intention to recycle. In the field of

consumer marketing, MacKenzie and Spreng (1992) proved that motivation moderates the relationship between attitude and behaviour. Since PPE serves as a motivational device, the following hypothesis is proposed.

*Hypothesis 1 (H1):* Perceived policy effectiveness will have a positive moderating effect on the relationship between attitude and recycling intention.

The social cognitive theory developed by Bandura (1989) suggested that people's behaviour is a response to what they learn from watching others do in the context of particular physical and social environments; this highlighted the importance of subjective norm in the TPB.

In Trafimow's study (2000) in the field of health psychology, if a person has the habit to perform a certain behaviour, the link between subjective norm and behavioural intention will be weaker. We argued that subjective norm is an important predictor of recycling intentions, particularly at the introductory stage of recycling schemes. It takes time for people to learn and to gain knowledge on recycling activities. If a public authority is effectively motivating recycling behaviour, the influence of subjective norm would become weaker. The following hypothesis is therefore proposed.

*Hypothesis 2 (H2):* Perceived policy effectiveness will have a negative moderating effect on the relationship between subjective norm and recycling intention.

In relation to PBC, public recycling scheme can establish a plan to set up appropriate and convenient recycling facilities, e.g. drop-off points, curbside collection (Davis et al., 2006) to strengthen the PBC of individuals. Ajzen (1991) suggested that PBC increases an individual's motivation to perform certain behaviour, this is considered as perceived competence of performing the behaviour. PBC and PPE can therefore be regarded as intrinsic and extrinsic motivational factors respectively. When an individual is intrinsically motivated to perform recycling behaviour (i.e. high PBC), the behavioural intention would be higher. The extrinsic motivational factor (i.e. PPE) would then strengthen the link between PBC and behavioural intention. The following hypothesis is proposed.

*Hypothesis 3 (H3):* Perceived policy effectiveness will have a positive moderating effect on the relationship between PBC and recycling intention.

Similar to the nature of subjective norm, recycling intentions are unconsciously directed by social responsibility. The perceived moral obligation would play an important role in influencing individuals' intentions to perform recycling behaviour. This normative influence would be more important at the introductory stage of recycling schemes, the time when people would follow the perceived moral norm to perform socially desirable behaviour. When a public authority effectively and adequately motivates and facilitates recycling behaviour, the influence of moral norm on recycling intentions would become weaker. The following hypothesis is proposed.

*Hypothesis 4 (H4):* Perceived policy effectiveness will have a negative moderating effect on the relationship between moral norm and recycling intention.

Bamberg and Schmidt (2003) stressed that individuals would select an alternative with the most positive behavioural consequences. If an individual has a higher level of awareness of the

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