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## The influence of the Energy Performance Certificate: The Dutch case



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## HIGHLIGHTS

- Results of a survey of EPC recipients and non-recipients are presented.
- The influence of the EPC is analysed descriptively and statistically.
- EPC is found to have a weak influence pre and post-purchase.
- More sophisticated mechanisms are needed to enhance the EPC.

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## ABSTRACT

All European Union Member States require an Energy Performance Certificate (EPC) when buildings are constructed, sold and rented. At its introduction the EPC was considered a pioneering instrument, one that would help overcome an information deficit hindering consumer interest in energy efficient dwellings. Now that the EPC has been implemented for several years it is possible to examine its impact. This research draws on data from ex-ante and ex-post assessments of the EPC in a number of countries and presents the results of a survey of Dutch private dwelling purchasers. This survey was based on two sample populations, one received an EPC during property transaction and another did not. Differences were sought between the two samples in a number of areas relating to the adoption of energy efficiency measures. Results show that many projections about the impact of the EPC have fallen short. The EPC was found to have a weak influence, especially pre-purchase. The potential of the EPC in driving energy efficiency improvement in the existing stock is doubted especially if it continues to act independent from a mix of instruments designed to tackle multiple barriers. It is argued that the energy saving potential of existing dwellings, applauded in climate change policy, will remain unexploited if it continues to be assessed subjectively by householders.

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## 1. Introduction

The EPC was introduced as a requirement for European Union Member States by the Energy Performance of Buildings Directive 2002 (recast 2010) with most Member States requiring the EPC by 2008. The EPC assigns a building a rating based on the energy efficiency of the thermal envelope and installations. Ratings range from A to G, A being the most efficient. Alongside this, the EPC can contain recommendations showing what energy efficiency improvements are possible and in some cases what corresponding cost savings can be expected.

At its debut the EPC was considered a pioneering instrument. The European Commission (EC) heralded it as “a powerful tool to create a demand-driven market for energy efficient buildings... allow[ing] economic agents to estimate costs in relation to energy

consumption and efficiency” (EC, 2008, p. 5). The outreach capacity of the EPC formed an appeal to some commentators as: “arguably the most commonly available and accessible source of advice to home sellers and buyers about the sorts of improvements that could help save both cash and carbon” (NHER, 2009). Similarly, “the certificate provides a unique opportunity to formulate individual action proposals for each house and each property owner” (SOU, 2008, p. 66). Other statements show that the EPC was expected to play a significant role in market transformation because it “sends a powerful message to homeowners, the construction industry and appliance suppliers alike. It empowers consumers to factor in energy efficiency as part of their decision to buy a particular property and to understand better how they can have control over the energy performance of their home (by consumption patterns and home improvements). Construction and appliance suppliers will have to respond to the needs of better-informed consumers” (cited in Parnell and Popovic Larsen, 2005, p. 1093).

The bold statements of early policy responses have yet to come to fruition. Implementation issues and a lacklustre response from

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buyers and sellers in many European Member States means that the EPC is not the empowering tool leading the charge to market transformation that was expected (Laine, 2011; Watts et al., 2011; Amecke, 2012; Backhaus et al., 2011).

The aim of research presented here is to comprehensively assess the EPC in the Netherlands. It is possible to piece together different aspects relating to how the EPC functions, pre and post purchase, from research projects in various European countries. In this research how the EPC functions across all aspects, pre and post purchase is assessed in depth for one country. Moreover, the lack of an enforcement regime for the EPC in the Netherlands at the time of research allowed for recent homeowners with an EPC to be compared to recent homeowners without an EPC, an important dimension to understanding the effectiveness of the EPC that has not been previously reported. As well as assessing the differences in terms of energy saving measures adopted and planned the reasons why homeowners did not have an EPC at the time of purchasing their property was assessed.

## 2. Barriers, behaviour and instruments

The persistent failure of households to carry out cost effective energy saving measures in their dwellings has enjoyed attention for several decades (Gates, 1983; Jaffe and Stavins, 1994; Curtain and Maguire, 2011). Research shows that households behave differently to rising energy prices and to public campaigns to reduce energy use depending on large range of variables including income, age, location, the energy saving measures being promoted, the information at their disposal and their personal norms and values (Poortinga et al., 2003; Martinsson et al., 2011). Some of the more consistent and alterable variables such as financial ability and information are linked to the 'barrier-model' of developing instruments.

The barrier model theorises that householders do not capitalise on opportunities to improve the energy efficiency of their dwellings because of well-rehearsed obstacles including but not limited to difficulties in meeting the upfront costs of energy saving measures, hassle and lack of trusted information (Blumstein et al., 1980; Shove, 1998; Weber, 1997). The EPC can be viewed as a reaction to the information deficit barrier. Its application at the property transaction point appears during an important natural moment that could aid market transformation by driving sellers to improve their property or potential buyers to negotiate on the basis of a poor EPC rating. Furthermore, it provides information on energy saving measures that could be applied post-purchase.

However, the apparent logic of the barrier model and the instruments formulated in response can clash with research applied to decipher household attitudes and behaviour at a deeper level. Collins et al. (2003, p. 25), for example, are highly critical of the way some information tools are formulated and perceived to operate: "Eco-labelling is perhaps the best example of a policy which relies on a naïve conceptualisation of human behaviour. The assumption is that information drives action...all the available evidence suggests that this is a false assumption: people do not purchase in a rational, information seeking way". The barrier model is also subject to criticism because of its simplicity. Instead of developing instruments in reaction to specific barriers Blumstein et al. (1980) and Shove (1998) have called for greater understanding of the nature, variation and interaction of barriers across time, space and different households. This sentiment is echoed in segmentation models of populations based on their resources, attitudes and propensity to act on their knowledge and beliefs. These models consistently show that householders make up such a rich tapestry that 'one size fits all' instruments will

simply miss the target (Vringer et al., 2007; Egmond et al., 2006; Sutterlin et al., 2011).

A range of literary sources confirms that the conceptual pillar of many instruments – the rational, information seeking individual – is a minority. Thaler and Sunstein (2008) call this minority Econs, whereas the majority of people are Humans, led by emotion and often the agents of poor decisions that defy economic logic. This division in how populations react also has a home in diffusion research. There are innovators and laggards and in between a great majority (Rogers, 2005). Diffusion and market transformation literature cajoles that once the great majority is reached, goals come into sight and policy efforts pay off. Gladwell (2002) calls this the tipping point. How this tipping point can be reached and the types of interventions that can lead to it are surrounded by uncertainty and complexity.

Some pointers are offered by theories from marketing, economic behaviour, psychology and diffusion in the promotion of a combined instrument approach. Stern (2000, p. 419) notes that "since different individuals face different impediments to behaviour change and the impediments are often multiple, little happens until the right combination of interventions is found". A communication instrument like the EPC is especially considered in need of companions, "communication instruments can be useful when it comes to addressing information problems, but they are generally considered to be supplementary policy instruments, not substitutes for economic or regulatory instruments" (cited in Sunikka, 2006). Stern (1999) echoed this statement finding that information alone, depending on careful design and delivery, could change certain kinds of environmentally significant consumer behaviour to a modest extent. He found that there was little to no effect of information tools when there are other barriers external to the individual such as financial barriers and inconvenience. A number of research projects on perceived and actual impact of the EPC illustrate some of the aforementioned concepts and complexities.

## 3. Previous research

A clear divergence between ex-ante and ex-post research on the EPC exists. Ex-ante results show restrained positivity towards the EPC but with a repeated caveat that it must be embedded in a wider framework of instruments. Sunikka (2006) termed it a "first step towards influencing consumer preferences". Likewise, Parnell and Popovic Larsen (2005) state that it is a positive first step but that improvement would be needed to ensure effectiveness and that it would need to be embedded in a wider programme of domestic energy efficiency support. The results of a European project BELAS which involved the critical appraisal of then extant variants of the EPC in participating Member States concluded that for the EPC to be successful it must be "'pushed' by institutional users, or 'pulled' by government". They went on to say, "Energy labelling, when integrated into a well-designed overall approach and programme, can contribute to inciting energy saving investments" (BELAS, 2001). The results of another European project IMPACT came to similar conclusions and it was put forward that recommendations in the EPC could form a basis for other policy instruments (IMPACT, 2005).

Other ex-ante assessments showed that the EPC could expect a warm welcome on the property market. In the UK, in a sample of over 2000 individuals, 78% stated that it would be important to look at the EPC rating before buying and 70% stated that they would consider re-negotiating the property price if they discovered it was highly energy inefficient (EST, 2008). The European project IDEAL EPBD found that in a survey of over 3000 European households 60% mentioned expected utility costs as important in a

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