Energy Policy 39 (2011) 6608–6614

Contents lists available at SciVerse ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

The impact of Energy Performance Certificates on the rental and capital values of commercial property assets

Franz Fuerst [a,*], Patrick McAllister [b]

[a] Department of Land Economy, University of Cambridge, 19 Silver Street, Cambridge, CB3 9EP, United Kingdom
[b] Real Estate & Planning, Henley Business School, University of Reading, RG6 5UD, United Kingdom

ARTICLE INFO

Article history:
Received 21 April 2011
Accepted 3 August 2011

Keywords:
Energy Performance Certificates
Commercial property values
Real estate appraisal

ABSTRACT

This paper focuses on the effect of energy performance ratings on appraised capital values, rental values and equivalent yields of UK commercial property assets. The study is based on a cross-section of 708 commercial property assets. Incorporating a range of potential confounding factors such as unexpired lease term, vacancy rate and tenant credit risk, we use hedonic regression procedures to estimate the effect of EPC rating on rental and capital values. The study finds no evidence of a significant relationship between environmental and/or energy performance and rental and capital values. A small subset of 24 BREEAM-rated assets is also tested for significant price effects but a statistically significant effect is only confirmed for equivalent yields. Similarly, there was no evidence that the EPC rating had any effect on Market Rent or Market Value with only minor effects of EPC ratings on equivalent yields. The preliminary conclusion is that energy labelling is not yet having the effects on Market Values and Market Rents that would be expected if high EPC ratings were associated with substantial cost savings that are fully reflected in capital values and/or were readily available and taken into account by prospective tenants and buyers.

1. Introduction

This study is one of the first to investigate the economic effects of energy performance ratings for UK commercial property assets. As part of a wider objective to reduce greenhouse gas emissions, one of the policy aims of energy labels, such as Energy Performance Certificates (EPC), is to provide information to market participants about buildings' energy performance. In turn, it is implied that increased transparency will cause a structural shift towards higher demand for energy-efficient buildings which in turn will have effects on prices, supply and, ultimately, on the reduction of greenhouse gas emissions. Since they constitute the terms on which products are exchanged, prices are a fundamental element of markets and, whilst not always perfect, price signals are central to the operation of markets since they provide the information basis for the allocation of resources. Research on price effects is, therefore, central to identifying the effectiveness of this type of policy intervention.

The particular focus of this research is on the effect of EPC rating on the capital values, rental values and equivalent yields of a cross-sectional sample of UK commercial property assets obtained from Investment Property Databank (IPD), the largest independent provider of real estate performance analyses for owners, investors, managers and occupiers of real estate. In the absence of continuously traded, deep and securitised markets, commercial property valuations perform a vital function in commercial property markets by acting as a surrogate for prices. Valuers act as key information providers about the estimated rental and capital values prices of commercial property assets. As such, their interpretation of markets is central to financial reporting, lending decisions and performance measurement. Based on a relatively small sample of UK commercial property assets, this paper investigates whether assets' energy ratings have any significant effect on their rental and capital values and equivalent yields.

2. Energy labelling

Energy labels can broadly be interpreted as a form of eco-label. Over the last decade, the commercial real estate sector has seen the introduction of a wide range of, what can be loosely termed, eco-labels. Although there is likely to be a drift towards harmonisation, at the international scale there are competing voluntary labels. Within national real estate markets, there can be a blend of compulsory and voluntary eco-labels. Indeed, as more and more local regulatory bodies make the attainment of a voluntary environmental label a requirement, labels such as BREEAM and

* Corresponding author.
E-mail address: ff274@cam.ac.uk (F. Fuerst).

0301-4215/$ - see front matter © 2011 Elsevier Ltd. All rights reserved.
doi:10.1016/j.enpol.2011.08.005

LEED are becoming quasi-compulsory as the distinction between voluntary and compulsory becomes blurred.

Measurement of energy use in new and existing buildings has become obligatory following the EU Energy Performance of Buildings Directive. The Directive required all buildings at construction, sale or rent (or every 10 years) to have certificates giving information about their energy performance through a rating of CO_2 emissions. In the UK, certification comprises Energy Performance Certificates (EPCs) and the Display Energy Certificates (DECs). An EPC (and accompanying recommendation report) is an *asset* rating which is intended to inform potential buyers or occupiers about the intrinsic energy performance of a building and its associated services as built. They are similar to the mandatory eco-labels used in many consumer products such as tumble dryers and washing machines. However, compared to consumer products, such as white goods, commercial real estate assets often create more complex issues.

The DCLG (2008) highlighted the problems of defining the unit to which an EPC should be attached. Essentially, there is no straightforward relationship between EPCs and property units. If a building has a common heating system, one EPC may be produced even when parts are sold or let. If there is no common heating system, then separate EPCs must be produced for each part sold or let. This raises the problem of what to do about communal areas. DCLG (2008) suggest that communal areas are ignored when producing EPCs for units within a building. When a whole building containing communal areas is sold or let them an EPC of those areas may be separately produced or included within an EPC for the whole building. Given the division of large commercial real estate assets into different letting units with sub-tenancies, etc. there can be significant problems in linking asset, letting unit and EPC unit data.

3. Energy labelling and the commercial property sector

The direct aim of environmental labels is to provide information to consumers or users about the environmental performance of a product with the indirect aim of influencing their consumption choices, suppliers' production outputs and, as a result, the level of environmentally harmful emissions. If goods with superior energy performance are not being priced efficiently, there may be sub-optimal consumption and production. Whilst the operation of the market pricing mechanism is central to the effectiveness of this type of market-based policy, there has been very little policy evaluation. This is largely because the policy is relatively recent and, as mentioned briefly above, there are well-documented problems of data availability (see Fuerst et al., 2010 for a detailed discussion).

Assuming that environmental performance is a salient attribute for consumers, environmental labelling enables consumers to discriminate between products according to their environmental impact. This is implied to produce increased demand for products with reduced environmental impact and price differentials linked to energy performance. Price premiums, in turn, provide an economic incentive for producers to innovate and incur any additional production costs associated with improved energy performance.

For investors, superior risk-adjusted returns from energy efficient assets should provide a financial incentive to allocate investment to assets that are energy efficient. From the occupiers' perspective, operating from a more energy efficient building may increase productivity, reduce running costs, meet corporate social responsibility objectives and attract financial incentives (or help avoid environmental taxes). For suppliers of commercial property space, prices act as the 'invisible hand' steering production. When the market price of a product is higher than its cost of production, increasing production should profitable, new producers should have incentives to enter the market and resources should be allocated to sectors where there is the highest willingness to pay.

In practice, there is evidence to suggest that the information provision role of energy labels may not be operating as expected. Firstly, in the UK there is evidence of systematic non-compliance with regulations (see Banks, 2008 for a discussion of some early problems). Periodic surveys by organisations such as National Energy Services and Quidos have consistently found low (albeit improving) compliance rates with EPC requirements in the commercial property sector. Secondly, where these certificates are provided, it is often after the marketing stage. Anecdotal evidence suggests that Energy Performance Certificates tend to been given to tenants well after Heads of Terms have been agreed and sometimes after completion. This may be indicative of the importance that tenants place on this information rather than any attempt to obfuscate by owners. Nevertheless, it is unlikely that an EPC rating will be a significant price determinant if it is introduced after the price has been determined.

In addition to non-compliance issues, a number of intervening factors can effectively break any hypothesised link between energy performance and economic performance in the case of EPCs. Firstly, the fact that the EPC rating only indicates the intrinsic energy performance of the building based on its design may create uncertainty among tenants and buyers as to the cost savings potential in operation, which may in turn lead these market participants to discount the information expressed by the EPC rating. A further complicating issue is that, even if EPC ratings accurately expressed both the design-based and operational potential for cost savings, behavioural factors may effectively act to offset any gains from increased energy efficiency, commonly known as the rebound/backfire effects or 'Jevons' paradox'. Hanley et al. (2009) find this to be the case in a CGE application of energy efficiency measures in Scotland but on balance the empirical evidence on the existence and magnitude of these effects remains disputed (see, for example, Sorrell, 2009).

4. Related research

There is a considerable body of commentary suggesting that buildings with superior environmental performance deliver a bundle of benefits to occupiers and investors (see Eichholtz et al., 2010 for a review). Owners and occupiers may benefit from subsidies and tax benefits that have emerged in some markets. For occupiers, benefits may include reduced operating costs of the building (mainly associated with energy and other utility savings), improved productivity of the occupying business (associated with reduced staff turnover, absenteeism *inter alia*) and other competitive advantages linked to marketing and image benefits. It is expected that these benefits will drive increased rental bids from potential occupiers.

In addition to possible rental premiums, investors may also benefit from reduced holding costs (due to lower vacancy rates and higher tenant retention), reduced operational costs (due to energy and other utility savings), reduced depreciation (linked to the use of latest technologies) and reduced regulatory risks. There appears to be broad empirical support in the literature for increased willingness-to-pay in the consumption of products with superior environmental performance. Whether a stated preference for these products will actually result in a price premium depends on a number of conditions such as the share relative to that of general consumers, the anticipated payoff period of costs associated with superior energy performance and, obviously, awareness by consumers of superior energy performance. Commercial real estate