Addressing key barriers in the delivery of domestic energy efficiency improvements – the case for energy efficiency property purchase taxes

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Abstract

Improving the energy efficiency of homes suffers from two key barriers. The first is that the cost of fuel bills rarely factor into the house price. The second is that the average length of occupancy for homeowners in the UK is shorter than the payback period of many energy efficiency measures with positive net present values. As a result the installation of measures often doesn't occur. There is a risk to the household that they will move before they recoup their investment from the improvements. This risk is heightened by the knowledge that the improvements are unlikely to result in an increase in house price.

New financing schemes for energy efficiency are trying to side-step the second barrier by tying a repayment charge to the property rather than the household, yet there are administrative costs involved, questions over how attractive households will find the offer, and a risk that purchasers see the charge that they would inherit as a burden.

A complimentary approach is to use taxation to remove the first barrier by varying the Property Purchase Tax (Stamp Duty Land Tax in the UK) with the efficiency of the property, using building labelling systems within Member States. Two otherwise identical properties would have a different level of SDLT payable by the purchaser, impacting upon the house price. This should create an incentive for the seller to improve the property before placing it on the market; immediate energy savings and an increase in property value may provide sufficient incentive for the purchaser to improve the property without the requirement for rebates. The approach is administratively simple and Governments can adjust the SDLT differential over time to drive further uptake.

This paper will assess the potential for such an approach, the likely impact of the differentials, and the implications for equity within the tax system.

Introduction

Improving the energy efficiency of existing homes will be essential to achieve the UK's carbon reduction targets and security of supply objectives in the most cost-effective manner. Yet, despite energy efficiency representing one of the least cost (often negative cost) options for carbon reduction, much potential for improvement remains, with public policy often key to delivering improvement.

This paper assesses two of the key barriers to delivering energy effiicnecy improvements to the existing housing stock, and how two policies – Green Deal finance and Stamp Duty Land Tax (SDLT) – could be used to address them, before assessing the potential impact of SDLT in more detail.

KEY BARRIERS TO THE UPTAKE OF ENERGY EFFICIENCY MEASURES

The provision of energy efficiency measures in the UK suffers from two key barriers. Both act to stem the delivery of 'negative cost measures' – technologies that simple net present value calculations show to be cost effective at current prices – and inhibit the achievement of energy efficiency improvements and carbon reduction targets.

The first key barrier is that the cost of energy bills, or the operational cost, does not factor for the vast majority in the purchasing decision when buying a home. To an extent, the informational market failure here is being addressed by the

requirements for labelling under the Energy Performance of Buildings Directive. However, a combination of the labelling not communicating energy costs clearly enough for households, together with the relative lack of importance placed upon energy issues by purchasers, means that whilst there is some evidence that energy labelling across the EU is resulting in higher valuations for efficient buildings[1], the same is yet to be evidenced in the UK[2].

It is logical that potential property purchasers should value the fuel bill savings in energy efficient properties, and that this is reflected in a higher price for the property. As yet, such savings are not being valued. The importance of this barrier is that it increases the risk for homeowners that investment in energy efficiency does not pay back. If investments led to an improved energy efficiency rating, reduction in fuel bills, and a concurrent increase in house price, then the risk to the homeowners and lending institutions that the improvements would not create sufficient return on investment would be reduced.

If investment in demand reduction does not create value for the household in increased property values, the technologies must make their case for installation on the basis of payback. The majority of measures can be installed at positive net present values at standard interest rates; that is they pay for themselves in energy savings over their lifetimes[3]. As such, many of these interventions could in theory be installed by most homeowners (subject to credit availability) at no upfront cost through conventional finance mechanisms, with the fuel bill savings each year exceeding the loan repayments (subject to the interest rate). This is the 'low lying fruit' – the 'no brainer' savings that could be made, but which at present are not.

Many factors combine to stop the installation of measures at this stage (lack of knowledge, uncertainty over technological performance etc[4]), though an important factor is the fact that the typical period of occupancy in a property is shorter than the typical lifetime of energy efficiency measures. This is the second barrier. Energy efficiency measures may have a positive NPV, but there is a significant risk that the household will move home before they have recouped their capital investment in reduced fuel bills. Why invest in something with a 15 year payback if the average homeowner moves every 12 years? And since no household knows how long they will remain at the property at the outset, the risk becomes greater. Why invest in something with a 5 year payback if there's a small risk that I could move in two? The uncertainty here introduces further risk; essentially acting to increase the discount rate used by households to evaluate energy efficiency investments.

These two key barriers are therefore intrinsically linked to make energy efficiency a risky investment for homeowners. The risk of selling the home two years after the initial outlay would be less significant if the energy efficiency improvement was valued in the house price. The lack of impact upon house price would not be critical if measure repayments could be spread over periods longer than the typical occupancy. Ideally both barriers would be removed: energy efficiency investments would trigger an increase in house price, and the costs of measures could be spread over their lifetimes (i.e. consecutive occupancies).

The UK is currently at a transition point in energy efficiency policy, with proposals to move from programmes that see energy efficiency measures delivered through obligations upon energy suppliers and Government funded programmes (e.g. CERT, CESP, Warm Front), to the development of financing mechanisms that could see energy efficiency measures being delivered by a wider market (albeit with some energy company support). To maximise the chance of this transition resulting in wholesale change, it will be important for Government to assess these barriers and consider supporting measures to overcome them. This paper assesses the opportunities for using property purchases taxes – Stamp Duty Land Tax (SDLT) in the UK – to help drive the market for energy efficiency measures in the context of the Government's flagship programme, Green Deal.

ADDRESSING KEY BARRIERS: GREEN DEAL FINANCE

The Coalition Government has announced a 'Green Deal' policy which seeks to drive energy efficiency take up by addressing one of these key barriers – aligning the repayment period for energy efficiency improvements with the lifetime of the measures installed. The policy, to be introduced in late 2012, will include a financing mechanism based on the 'Pay As You Save' theory. 'Pay As You Save' allows a household to install a package of energy efficiency measures in their home and repay the capital sum through the fuel bill savings that accrue. The nature of the energy efficiency measures that make up the package must be such that the fuel bill savings exceed the repayment charge, meaning the household is better off as soon as the package is installed. Variants on the mechanism have been introduced in the US with useful lessons for the UK proposals.[5, 6]

Where Green Deal Finance (GDF) differs from a conventional loan is that the repayment charge is tied to the property rather than the occupant – it passes to the next occupant with the deeds or new tenancy. This overcomes one of the key barriers: energy efficiency measures can be installed that repay over their lifetimes (or at least the period of the repayment – in the UK this is expected to be around 25 years) rather than over the expected period of occupancy. It reduces the risk that a household may not recoup their investment through lower fuel bills.

As illustrated in Figure 1, Green Deal finance tackles the second key barrier. However, it fails to address the first, meaning the energy efficiency measures are still required to pay for themselves, rather than generating value from an increase in house price. In itself it is an enabling mechanism, but, since a portion of the financial savings generated are taken in repayments, one that may not carry enough incentive to stimulate

1. Brounen, D. & Kok, N. (2010) On the economics of EU energy labels in the housing market. [online] Available at: http://www.rics.org/site/download_feed.aspx?fileID=7754&fileExtension=PDF [Accessed 15 March 2011].

2. RICS (2010) Energy Efficiency and Value Project – final report. [online] Available at: http://www.rics.org/site/download_feed.aspx?fileID=6271&fileExtension=PDF [Accessed 15 March 2011].

3. Enkvist, P et al. (2007) A cost curve for greenhouse gas reduction. [online] Available at: http://www.epa.gov/air/caaac/coaltech/2007_05_mckinsey.pdf [Accessed 15 March 2011].

4. Jaffe, A. & Stavins, R. (1994) The energy-efficiency gap. *Energy Policy*, 22(10), pp.804-10.

5. Fuller, M. (2009) Enabling investments in energy efficiency: a study of residential energy efficiency financing programs in North America. [online] Available at: http://www.eceee.org/conference_proceedings/eceee/2009/Panel_2/2.146/ [Accessed 15 March 2011].

6. Johnson et al (2010) Lessons learned from the field: key strategies for implementing successful on-the-bill financing programs. [online] Available at: http://www.iepec.org/2010PapersTOC/papers/046.pdf [Accessed 15 March 2011].

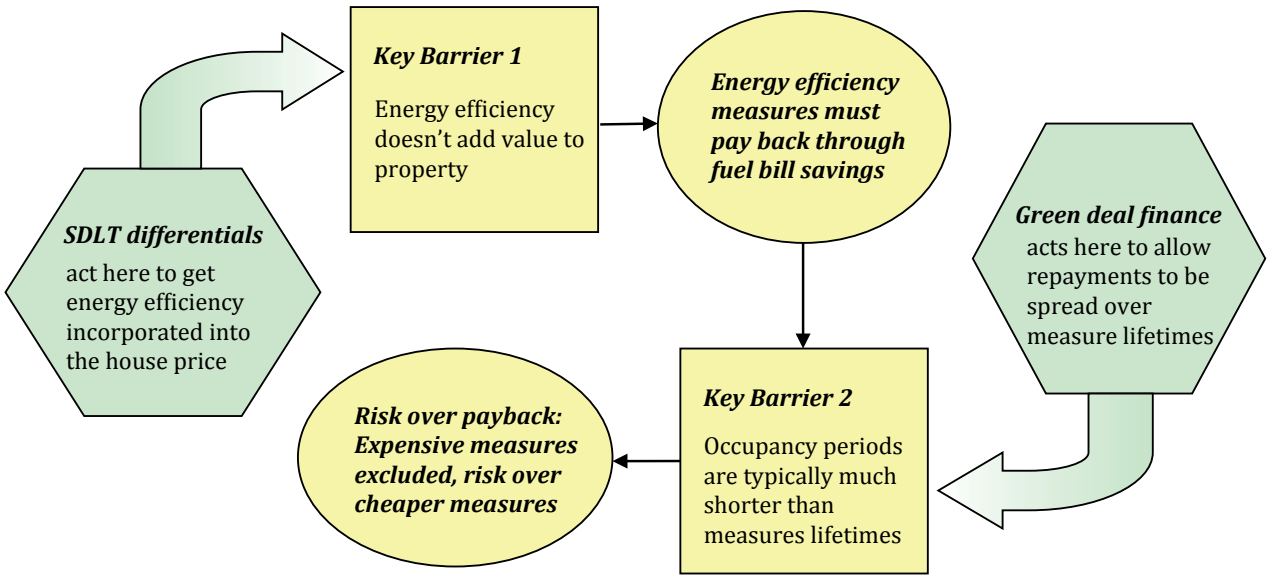


Figure 1 – Addressing Market Failures. SDLT differentials and Green Deal Finance work to addresses different market failures in the provision of energy efficiency in the UK

the potential level of uptake suggested by Government: to improve up to 14 m homes by 2020[7].

Whilst beyond the scope of this paper to fully critique GDF, the mechanism also creates a rather complex finance, billing and risk structure, with the involvement of energy companies to add the repayment charge to the bill, installers, high street companies to market and advertise the scheme, financers to raise capital, and insurance companies to manage risk. With each entity incurring transactional costs and requiring sufficient incentive to play their role, there are concerns over the eventual interest rate added to repayments. A high interest rate would reduce both the extent of energy efficiency packages that could be delivered (excluding measures with longer payback periods) and the attraction for households who will see reduced savings after installation. Whilst an innovative approach to address one key barrier, it may be that GDF on its own is not sufficient to deliver the level of uptake required.

ADDRESSING KEY BARRIERS: STAMP DUTY LAND TAX DIFFERENTIALS

GDF addresses the second key barrier by reducing the risk over the payback of energy efficiency measures, allowing a household to pass the repayment charge on to future occupants. However, the attractiveness of GDF could be enhanced, or perhaps the need for the mechanism negated, if energy efficiency improvements were reflected in improved house values.

Improving the kitchen and bathroom of a home is generally considered to add value to a property. Energy efficiency improvements, which deliver fuel bill savings, greater comfort, and health benefits, should do the same. Yet, whilst Governments can work with property valuers to encourage the inclusion of energy efficiency in property valuations, ultimately the market determines the level of house prices. Until homeowners both understand and value the reduction in fuel bills that energy efficiency improvements create, it will be difficult for improvements to generate increased property value. As such, there is a role for Government intervention to correct this key barrier.

Table 1 – SDLT rates at different property values in the UK in 2010/11.

Purchase price/lease premium or transfer value in 2010/11	SDLT rate
Up to £125,000	Zero
Over £125,000 to £250,000	1%
Over £250,000 to £500,000	3%
Over £500,000	4%

Stamp Duty Land Tax (SDLT) is charged on all transactions of property in the UK. For residential buildings, the tax is set as a percentage of the property value, with the percentage increasing with the value of the property. The rates paid are not marginal – the same rate is paid on the whole purchase price. Table 1 shows stamp duty bands as they apply to residential transaction in the UK in 2010/11.[8,9]

Figure 2 illustrates the annual SDLT receipts since 2002/3. Receipts increased by 89 % between 2002/3 and 2007/8 largely due an 85 % increase in average house prices between February 2002 and January 2008[10]. The economic situation and reduc-

7. Chris Huhne speech to Economist UK Energy Summit on 24 June 2010. [online] Available at: http://www.decc.gov.uk/en/content/cms/news/energy_summit/energy_summit.aspx [Accessed 15 March 2011].

8. HM Revenue and Customs (2011) Stamp Duty Land Tax rates and thresholds. [online] Available at: http://www.hmrc.gov.uk/sdlt/intro/rates-thresholds.htm [Accessed 15 March 2011].

9. First-time buyers are exempt from SDLT for properties below £250,000.

10. DCGL (2011) House Price Index [online] Available at: http://www.communities.gov.uk/publications/corporate/statistics/hpi112010 [Accessed 15 March 2011].

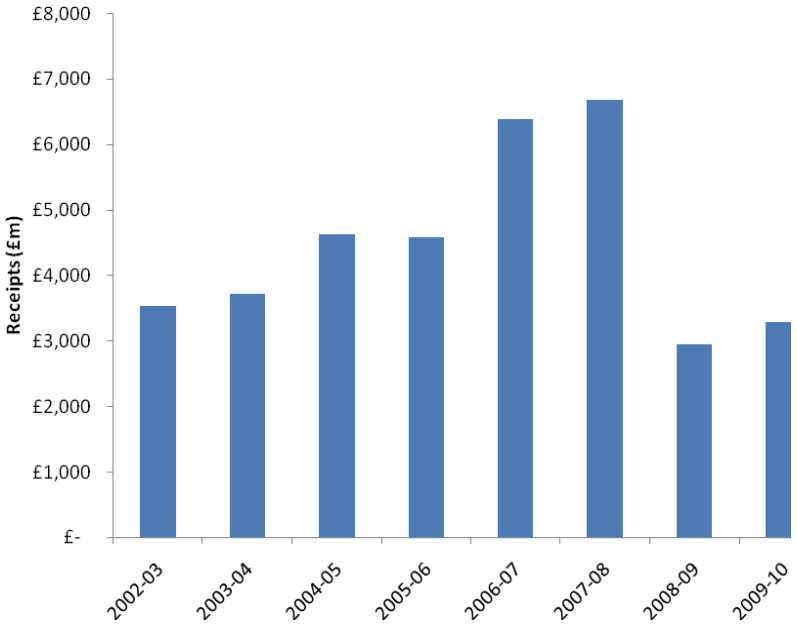


Figure 2 – Revenue from residential SDLT (£m).

tion in house prices in 2008 saw the number of transactions fall from 1.67 m in 2005/6 to 859,000 in 2008/9[11], leading to the reduction in revenues of more than 50 % between 2007/08 and 2008/09[12].

Modifications to SDLT are currently being used to help deliver upon policy objectives. To address concerns over access to home ownership, in 2010 the zero percent rate for SDLT was extended to properties worth up to £250,000 for first time buyers[13]. It is also being used to encourage environmentally conscious purchases of new homes. In the 2007 Budget, the Government announced that all new 'Zero Carbon' homes would be fully exempt from SDLT for the initial purchase[14]. Whilst these give a precedent to using SDLT to influence purchasing decisions, to date SDLT has not been used to promote energy efficiency improvements in existing homes.

Several bodies have made calls for SDLT to be used to encourage energy efficiency improvement, including in recent years the House of Commons Communities and Local Government Committee[15] and the Green Investment Bank Commission[16]. Most proposals have focussed on the provision of SDLT rebates to homeowners that improve their homes within a set period after purchasing a property[17], or conversely applying a surcharge to those homeowners that fail to make these improvements[18]. Such proposals recommend the rebate or surcharge is based upon whether the recommendations within the Energy Performance Certificates (EPCs) are implemented. These proposals have the advantage that they do not necessitate any fundamental change to the SDLT.

Whilst SDLT rebates are a potential mechanism to drive improvements to existing buildings, they suffer from a few drawbacks:

- The incentive acts only at the time of purchase, and therefore takes a long time to work through the stock with housing market churn
- There is level of administrative burden associated with the checking of compliance and the issuing of the rebate
- Rebates do not encourage energy efficiency to be valued in property prices. If anything, the incentive could make inefficient properties more attractive, if the household could receive a SDLT rebate for improving it.

Research for the UK's Energy Saving Trust found that Stamp Duty rebates would be an unpopular incentive[19]. Instead of SDLT rebates, this paper assesses the way in which the rate of SDLT could be adjusted based upon the energy efficiency of the property being sold, and whether this could incentivise the improvement of existing homes.

11. HMRC (2011) Monthly Property Transactions in the UK. [online] Available at: http://www.hmrc.gov.uk/stats/survey_of_prop/val-40000-or-above.pdf [Accessed 15 March 2011].

12. In part also driven by a temporary increase in the 0 % threshold to £175,000

13. HM Revenue and Customs (2010) Stamp Duty Land Tax (SDLT) First Time Buyers. [online] Available at: http://www.hmrc.gov.uk/budget2010/march/sdlt-qa-tech-1545.pdf

14. HM Revenue and Customs (2007) Stamp Duty Land Tax: relief for new zero carbon homes. [online] Available at: http://www.hmrc.gov.uk/budget2007/bn26.htm

15. House of Commons Communities and Local Government Committee (2008) Existing Housing and Climate Change. [online] Available at: http://www.publications.parliament.uk/pa/cm200708/cmselect/cmcomloc/432/432i.pdf

16. Green Investment Bank Commission (2010) Unlocking investment to deliver Britain's low carbon future. [online] Available at: http://www.climatechangecapital.com/media/108890/unlocking%20investment%20to%20deliver%20britain's%20low%20carbon%20future%20-%20green%20investment%20bank%20commission%20report%20-%20final%20-%20june%202010.pdf

17. Waterson, E. (2005) How can whole house fiscal measures encourage consumers to improve the energy efficiency of their homes? In: ECEEE, *2005 Summer Study Proceedings – What works & who delivers?*. France, June 2005.

18. Dresener, S. & Ekins, P. (2006) Economic Instruments to Improve UK Home Energy Efficiency without Negative Social Impacts. *Fiscal Studies*, Volume 27 (Issue 1).

19. Energy Saving Trust (2010) Exploring consumer willingness to pay. [online] Available at: http://www.energysavingtrust.org.uk/Global-Data/Publications/Corporate-publications-folder/Exploring-consumer-willingness-to-pay-full-version

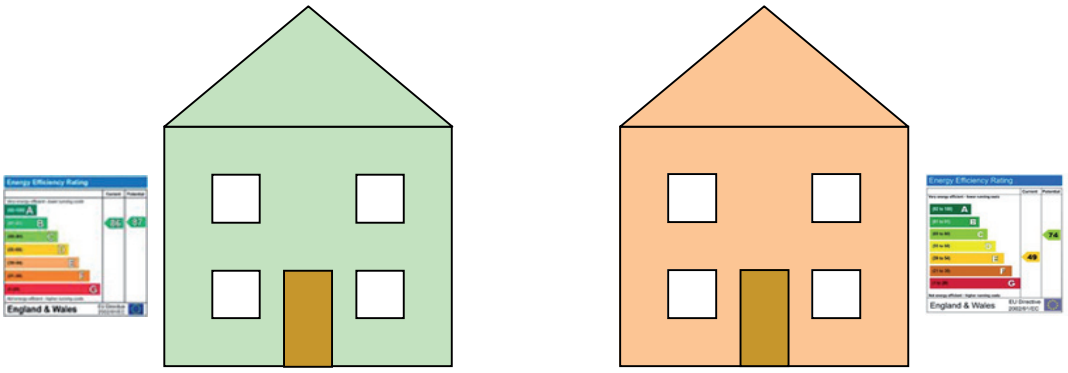


Figure 3 – Illustration of SDLT differential on two properties identical aside for EPC rating.

The value of a SDLT differential – an illustration

Rather than a system of rebates, this paper argues that adjusting the rate of SDLT by the energy efficiency of the property being sold could drive improvements, despite the fact that the direct impact is felt by the property purchaser and not the occupant. The following example (Figure 3) illustrates the rationale.

Two semi-detached properties, A and B, are situated in the same street, identical, and each worth £300,000. Stamp Duty on these properties would be charged at 3 % were they to be sold. The Government introduces a SDLT modifier that sees the rate of SDLT adjust with the energy efficiency rating of the property, as measured by the A-G rating on the EPC. The modifier ranges from a 1.5 % increase on those properties rated G, to a 1.5 % reduction on those properties rated A, with 0.5 % difference per band. I.e. properties rated E must pay a 0.5 % premium and those rated B receive a 1 % reduction.

The owner of property A invests in an energy efficiency package that increases the EPC rating from E to B. Both properties are then placed on the market. The Stamp Duty payable on property A is 2 % of £300,000, or £6,000. For property B, the amount is 3.5 % of £300,000 or £10,500. To those looking to purchase the properties, property B involves paying £4,500 more in tax than property A.

In theory, the implication is that property A can afford to charge more as a result of the improvements – up to £5,500 more would mean a purchaser would still better off with property A than property B, even before fuel bill savings are considered. The property's energy efficiency becomes an attractive selling point to reduce the amount of tax paid.

In this way, the energy efficiency of the property could become embedded in the house price, with occupants able to charge a premium for energy efficiency properties that they sell. For the energy efficiency market, confidence is created that investment in reducing energy consumption can increase the value of the home in the same way as investing in a kitchen or bathroom. Measures are no longer installed solely on the basis that they 'pay-back' – they also add value.

The addition of fuel bill savings makes the case even more compelling to improve the energy efficiency. Though new occupants may not be given a rebate for improving their building, they will have the knowledge that the investment will ultimately add value at the point they come to sell the home, and so it makes sense to improve the building as soon as possible and maximise the period over which they benefit from lower bills.[20]

Table 2 – Number and value of properties sold in 2007 in England.

Property Price (lower limit) £	Number (thousands)	Total Value (£m)
40,000	97	£ 5,837
75,001	120	£ 10,700
100,001	170	£ 19,720
125,001	166	£ 23,175
150,001	165	£ 26,948
175,001	143	£ 26,810
200,001	229	£ 52,528
250,001	95	£ 26,588
300,001	171	£ 65,096
500,001	55	£ 37,386
1,000,001	11	£ 15,424
2,000,001	4	£ 17,228
Total	*1,427*	*£ 327,440*

Modelling the impact of SDLT differential in England

A model was created to assess the impact of introducing a SDLT differential across the English housing stock. The English House Condition Survey (EHCS) data from 2006/07 was used as the baseline[21]. This survey has detailed information on 15,648 properties in England, and information on their propensity within the overall stock of 21.2 m properties. The survey includes an energy efficiency assessment and an EPC rating.

The Government's figures for the number of residential property transactions completed in England in 2007 by property value are shown in Table 2. The distribution of these prices was applied randomly to the EHCS properties, thus replicating the likely spread of properties across Stamp Duty bands.

20. Number and value of properties sold in England 2007: HM Revenue & Customs (2010) Table 16.1 - Analysis by type of property and range of price for England and Wales. [online] Available at: http://www.hmrc.gov.uk/stats/survey_of_prop/table16-1.pdf [Accessed 15 March 2011].

21. Department of Communities and Local Government (2008) English House Condition Survey 2006/07. [online] Available at: http://www.communities.gov.uk/housing/housingresearch/housingsurveys/englishhousecondition/ehcsdatasupporting/ehcspublicdatasets/ [Accessed 15 March 2011].

Table 3 – SDLT rates and modifications based on EPC band.

Value	Rate
Up to £125,000	0%
£125,001 - £250,000	1%
£250,001 - £500,000	3%
Over £500,000	4%

EPC Band	Adjustment
A	-1.5%
B	-1.0%
C	-0.5%
D	0.0%
E	0.5%
F	1.0%
G	1.5%

Table 4 – Level of SDLT paid given the EPC adjustments at different property prices.

	Property price						
EPC Rating	*£100,000*	*£200,000*	*£300,000*	*£400,000*	*£500,000*	*£600,000*	*£1,000,000*
A	£0	£0	£4,500	£6,000	£7,500	£15,000	£25,000
B	£0	£0	£6,000	£8,000	£10,000	£18,000	£30,000
C	£0	£1,000	£7,500	£10,000	£12,500	£21,000	£35,000
D	£0	£2,000	£9,000	£12,000	£15,000	£24,000	£40,000
E	£500	£3,000	£10,500	£14,000	£17,500	£27,000	£45,000
F	£1,000	£4,000	£12,000	£16,000	£20,000	£30,000	£50,000
G	£1,500	£5,000	£13,500	£18,000	£22,500	£33,000	£55,000
SDLT Baseline	*£0*	*£2,000*	*£9,000*	*£12,000*	*£15,000*	*£24,000*	*£40,000*

Table 5 –SDLT differential against baseline at different EPC levels and property prices.

	Property price						
EPC Rating	*£100,000*	*£200,000*	*£300,000*	*£400,000*	*£500,000*	*£600,000*	*£1,000,000*
A	-	-£2,000	-£4,500	-£6,000	-£7,500	-£9,000	-£15,000
B	-	-£2,000	-£3,000	-£4,000	-£5,000	-£6,000	-£10,000
C	-	-£1,000	-£1,500	-£2,000	-£2,500	-£3,000	-£5,000
D	-	-	-	-	-	-	-
E	+£500	+£1,000	+£1,500	+£2,000	+£2,500	+£3,000	+£5,000
F	+£1,000	+£2,000	+£3,000	+£4,000	+£5,000	+£6,000	+£10,000
G	+£1,500	+£3,000	+£4,500	+£6,000	+£7,500	+£9,000	+£15,000

The model was set up to apply a rate of SDLT through combining both the property value, and the energy performance certificate rating. The approach taken was to retain the existing SDLT base-rates, with an adjustment based upon the EPC rating of the property. The adjustment was for a 0.5 % change in SDLT per EPC band, with properties rated D retaining the same SDLT as the base-rate (Table 3, and as per example in Figure 3). The rate of SDLT was not allowed to fall below 0%.

Table 4 and Table 5 present both the levels of SDLT paid at different EPC bands and property price, and the differential against the SDLT baseline in Table 1.

To assess the potential impact of the SDLT differentials proposed, the likely cost of energy efficiency improvements for the homes within the EHCS were calculated. For the purposes of the modelling, the level of tax reduction was assumed to correspond to the potential increase in property value for the vendor. Where the magnitude of the tax reduction resulting from the energy efficiency improvement exceeded the costs of the works, the differential was considered to offer a reduction in risk to the homeowner.

To illustrate this, ACE's Property Assessment Model[22] (PAM) was used to assess the costs of improving buildings within the EHCS by one EPC band. PAM works by running the 15,648 buildings within the EHCS through a Standard Assessment Procedure[23] improvement calculator, to determine the optimal (in terms of NPV) package of improvement measures to install, in order to meet certain objectives (SAP targets, CO_2 reduction, Fuel Poverty alleviation etc). For the purpose of this research, the model was used to improve each property by one EPC band and record the cost of the intervention.

The model works by applying measures sequentially by cost-effectiveness until the target is met. In some cases the target cannot be met if the potential improvement measures are not

22. See use in Consumer Focus (2009) Raising the SAP. [online] Available at: http://www.ukace.org/publications/ACE%20Research%20%282009-05%29%20-%20Raising%20the%20SAP.pdf [Accessed 15 March 2011] and Consumer Focus (In Press) Green Deal: Access for All

23. The calculation methodology chosen by the UK Government to create the EPC ratings

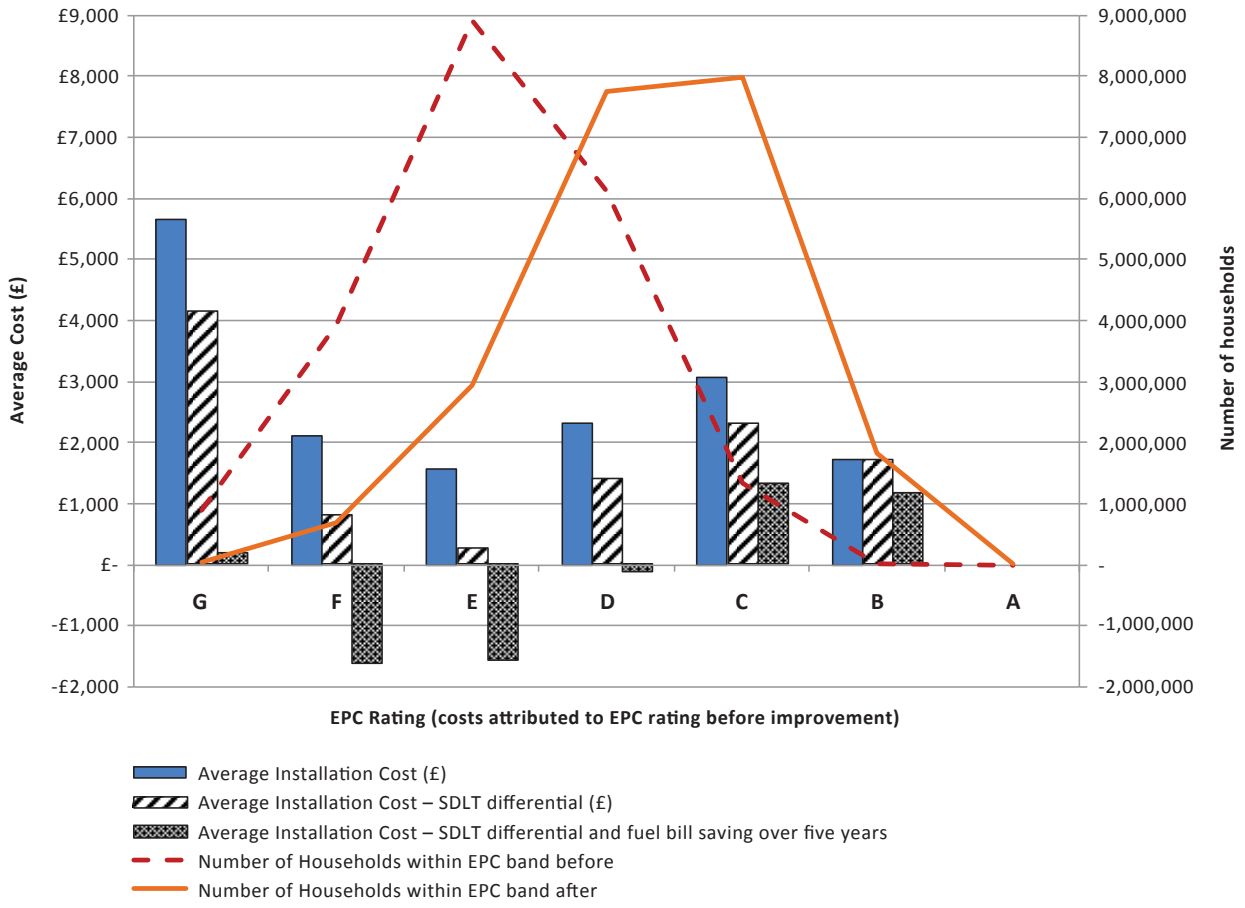


Figure 4 – Impact of SDLT differential and fuel bill savings on mitigating capital costs, and impact on EPC bands. EPC bands shown for the costs are those before improvements.

suitable for the property or deliver insufficient savings. In total, 98 % of the EHCS properties could be improved by one EPC band at a total capital cost of £45.8bn for the 21.2 m households in the UK.

Figure 4 illustrates the average cost of moving between EPC bands (solid bar). Costs range from £1,572 between band E and D, to £5,653 between bands G and F. This reflects the greater likelihood of band G properties having solid-walls and no access to the gas network, and thus requiring more expensive interventions. E-rated properties are more likely to have unfilled cavities or old gas boilers, and can therefore be improved at a lower cost.

For each property, the resultant reduction in SDLT as a result of the EPC improvements was also calculated. The impact of this reduction is also shown (diagonal stripes), subtracting the SDLT saving from the installation costs. Finally, the value of the fuel bill savings over five years was also subtracted (dotted bars).

Figure 4 illustrates that, on average, the SDLT differentials modelled do not exceed the capital cost of the energy efficiency improvements. This disguises the large number of properties for whom the stamp duty differential *is* sufficient to provide an immediate payback. As illustrated in Figure 5, over 9 m households (of 21.2 m) would see the SDLT differential being sufficient to cover the capital costs of the refurbishment package. This rises to almost 17 m with the inclusion of fuel bill savings over five years.

These results indicate that for 43 % of English housing stock, the cost of improving a home by one EPC band would be less that the reduction in tax payable on the property were SDLT modified by 0.5 % per band. The following section discusses whether such a SDLT differential would be likely to generate a market response, and the role of such an amendment within the Green Deal proposals.

Discussion

The rationale behind using SDLT to encourage energy efficiency investment is to remove the key barrier: that energy efficiency investment, which delivers lower fuel bills to occupants, is not being incorporated into house prices. This paper has presented a mechanism for adjusting SDLT in the UK based on the energy efficiency of the property being sold, as a way for this key barrier to be addressed. This section discusses some of the further questions that stem from this analysis.

COULD SDLT DIFFERENTIALS IMPACT UPON PROPERTY PRICES?

The concept proposed in this paper – that SDLT differentials can embed energy efficiency in property values – requires that property purchasers take account of SDLT in the purchasing decision. An analysis of the tax system and the response of the property market will form the basis of the follow up to this paper, yet anecdotal evidence suggests that SDLT rates do influence the property market:

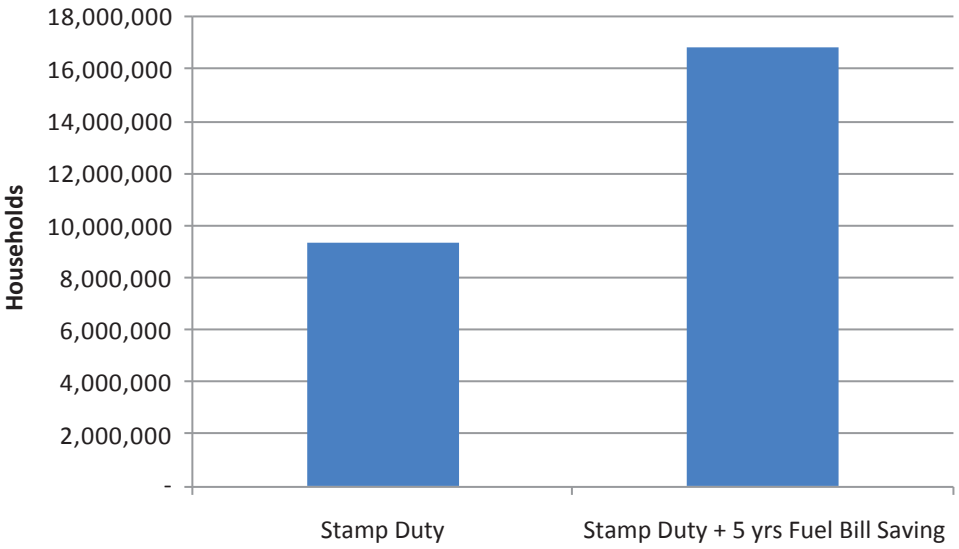


Figure 5 – Number of households for whom the SDLT differential exceeds installation costs of the improvement package, with and without the inclusion of fuel bill savings over 5 years.

- The non-marginal nature of the tax means that properties sold at values slightly in excess of the SDLT thresholds can have a greater net cost than those sold just below at a lower SDLT rate. As a result, vendors are recommended to 'round down' the asking price for their property to just below the SDLT thresholds[24]. Vendors are therefore sensitive to SDLT rates.
- Government adjusts the rate of SDLT to achieve policy objectives. The SDLT relief for Zero Carbon Homes, and for first time buyers purchasing homes below £250,000 have been introduced to encourage low carbon new build and increased access to the housing ladder respectively. Similarly, the 0 % rate threshold was increased to 175,000 between 2008-10 to stimulate the housing market during the recession.

Whilst further research on the likely impacts of a SDLT differential is vital, these examples indicate that households and Governments account for SDLT, the latter using it to influence purchasing decisions.

SETTING THE LEVEL OF SDLT DIFFERENTIAL

The model used a SDLT variant where the rate applied was adjusted by 0.5 % per EPC band. Clearly this differential could be adjusted to help drive further uptake of energy efficiency. It is worth considering the implications of such a change to SDLT, and the limitations on the degree of variation that could be realistically implemented.

The increasing rate of SDLT currently applied to properties with increasing value is testament to the progressive nature of the policy: it seeks to extract maximum value from those homeowners notionally most able to pay, whilst offering reduced or zero rates to those with less valuable homes. Complementing this aim with one to reduce the environmental impact of properties can assist in the achievement of twin objectives. By adjusting the SDLT percentage by EPC band, the impact is felt much more greatly on those in more expensive properties. This both helps to reduce the impact on those in lower valued homes, and provides greater stimulus to those paying the higher base rates.

In part this is broadly congruent with the likely expense of increasing EPC bands. Ratings are set according the fuel costs per m^2 of the property: the costs of improving the rating will be higher for properties with larger exposed wall areas and absolute heating demands. However, the difference is not in proportion. As shown in Table 4, improving a £1m property from EPC band G to EPC band A would create a £30,000 saving in SDLT. The same improvement in a property worth £100,000 would save just £1,500.

Care would have to be taken in ensuring that the changes were not solely able to drive improvements to the most affluent, and that increases in SDLT for lower valued homes also help to improve energy efficiency. The Green Deal has a role to play here in allowing households to take up improvement packages at no upfront cost.

GREEN DEAL FINANCE WITH SDLT DIFFERENTIALS

As discussed, GDF will allow households to install packages of energy efficiency measures at no upfront cost and pass on residual payments should they move home, though the reduction in net savings each year once the repayment charge is subtracted from bill savings is likely to reduce enthusiasm for the scheme. Government is considering further incentives and regulation that might be required to help drive demand for Green Deal[25].

A variable SDLT could play a significant role in helping to create this demand. Together, GDF and SDLT differentials present a mechanism whereby homeowners can improve their property at no upfront cost, but benefit through having a property that demands a lower tax payment at the point of purchase. It overcomes a concern that has been expressed over the Green

24. Property Price Advice (2011) FAQs. [online] Available at: http://www.property-priceadvice.co.uk/faqs/ [Accessed 15 March 2011].

25. DECC (2011) The Green Deal – a summary of the Government's proposals. [online] Available at: http://www.decc.gov.uk/assets/decc/legislation/energybill/1010-green-deal-summary-proposals.pdf [Accessed 15 March 2011].

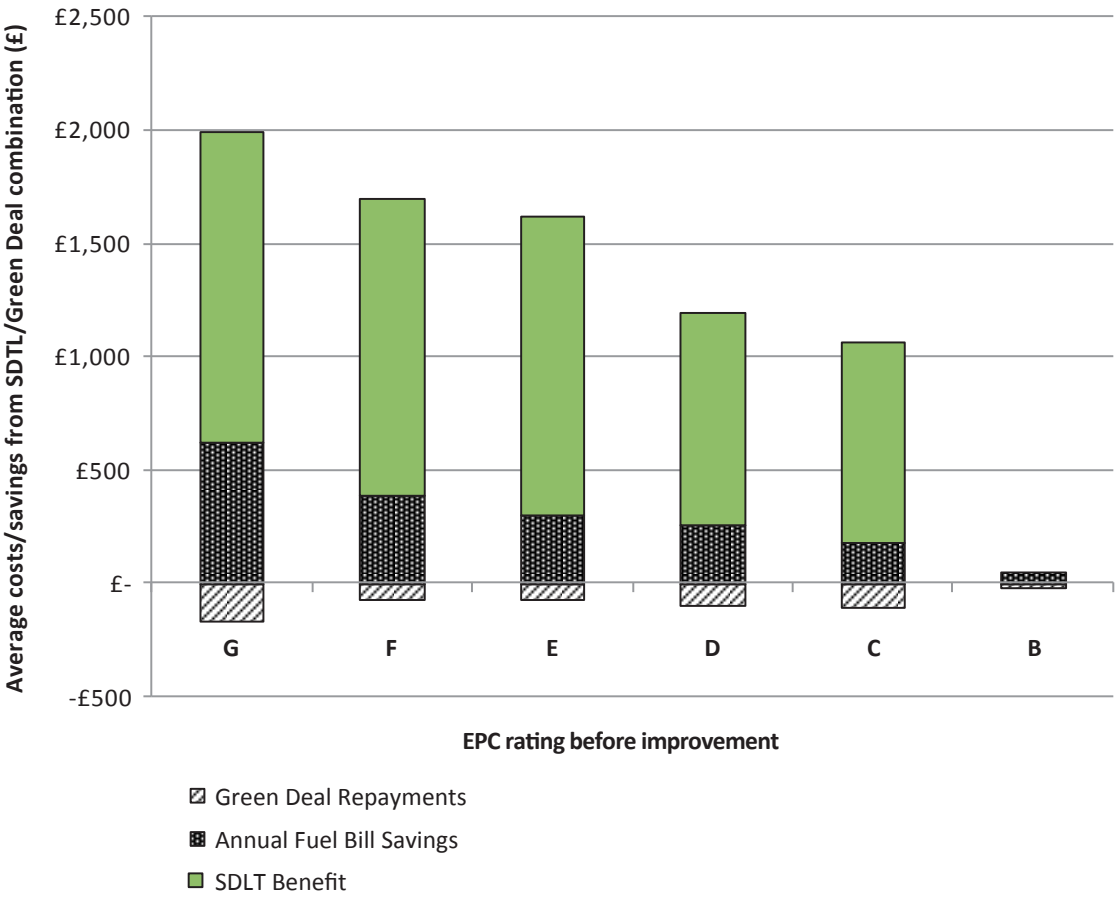


Figure 6 – Average costs/savings if the SDLT differentials are combined with a Green Deal financing arrangement. Fuel bill savings have been reduced by 20 % to account for comfort taking. Finance is provided over 25 years at an interest rate of 5 %.

Deal proposals: that a property with an existing Green Deal charge would be unattractive to new occupants, despite the lower bills that they will be benefiting from i.e. that they would not appreciate the lower fuel bills that they were benefiting from, and would simply see the Green Deal charge as an additional costs. Reductions in tax payable at the point of purchase could more than offset this potential risk.

Based on the improvements modelled to increase each English property by one EPC band, 89 % of homes could be financed by a Green Deal arrangement that met the 'Golden Rule' – where savings exceed repayments (at a 5 % interest rate, over 25 years, and assuming 20 % comfort taking). Properties that could be improved on these terms are illustrated in Figure 6. Whilst average savings exceed average repayments (as required by the 'Golden Rule'), the addition of the SDLT differential greatly increases the benefit of implementing the energy efficiency improvements. Working in conjunction, SDLT differentials and GDF could present a more compelling reason for homeowners to improve their homes.

The availability of GDF would help address a potential consequence: that the introduction of SDLT differentials would reduce the value of inefficient homes, in turn reducing the ability of occupants to raise finance to initiate improvements. Providing the cost of repayments is lower than the energy savings on offer, households should be able to access GDF. There are however homes where fuel bill savings are difficult to achieve, most typically in low income households which under-heat in order to reduce their energy expenditure. These households will require support to access Green Deal as the reduced savings potential means that they will struggle to meet the 'Golden Rule'. A new Energy Company Obligation (ECO) is proposed to commence in 2013, providing energy companies with an obligation to support the most vulnerable households and those in homes that are particularly expensive and difficult to improve. This obligation could offer support to those low income homeowners who were adversely affected by the changes to SDLT.

ENERGY PERFORMANCE CERTIFICATE RELIABILITY

Proposals to tie the level of SDLT to the energy efficiency of the property being sold have become feasible since the introduction of Energy Performance Certificates (EPCs) in the UK, as required under the Energy Performance of Buildings Directive. Since October 2008 EPCs have been required whenever a building is built, sold or rented.

The adjustment of a tax on the basis of the EPC rating requires that the rating is accurate and consistent. There are concerns over this in the UK[26], where a plethora of training and accreditation bodies oversee EPC implementation. Government are reviewing EPCs in the context of the Green Deal where they could form the basis of independent recommendations

26. RICS (2010) Energy Efficiency and Value Project – final report. [online] Available at: http://www.rics.org/site/download_feed.aspx?fileID=6271&fileExtension=PDF [Accessed 15 March 2011].

for households, and it will be important that the EPC process is rigorous and produces reliable results. Without this, not only would a variable SDLT be impossible, but other potential interventions being considered by Government, such as Council Tax rebates and regulating privately rented accommodation, would be problematic to implement.

GREENING THE TAX BASE

Amending SDLT along the lines of those presented in this paper would allow the Coalition Government to increase the proportion of the tax base drawn from environmental taxes, an aim set out in the Coalition Agreement[27]. As with most taxes that both reward 'goods' and punish 'bads', the policy risks reducing revenue if the incentive is successful at driving improvements to homes. However, this can be rectified by retaining the differential but increasing the underlying SDLT base-rates in order to keep revenue at a steady level.

The previous UK Government similarly supported environmental taxation, on the basis that it met four tests:

- It must be well designed, to meet objectives without undesirable side-effects;
- It must keep deadweight compliance costs to a minimum;
- Distributional impact must be acceptable;
- Care must be had to implications for international competitiveness.

The SDLT model presented generates few side-effects, builds on existing EPC requirements, and does not undermine the progressive nature of the tax.

Conclusions

Were energy efficiency and fuel costs to be reflected in the value of a property, much of the risk associated with energy efficiency investment would be reduced. This paper argues for the introduction of SDLT differentials in the UK based upon the EPC rating of a property. By adjusting the rate of tax paid by the purchaser with the energy efficiency of the property, more efficient properties (with lower rates of SDLT) would be more attractive and could thus demand a higher market price. In turn this would reduce the risk to homeowners, for whom energy efficiency measures have been unattractive without very short payback periods.

Modelling indicates that an adjustment in SDLT of 0.5 % per EPC band could be sufficient for the reduction in tax to exceed the cost of improving a home by one EPC band for over 9 m out of 21.2 m English households.

When twinned with Green Deal Finance, the policies provide both an incentive in an increased house price, and a mechanism for low risk finance. Together, the policies could enable energy efficiency measures in the UK to be delivered by the market, removing the key barriers that currently exist.

Questions remain over the likely response by property purchasers to such differentials, the likely impact upon market prices, the optimal level of the SDLT differentials to drive uptake whilst ensuring a fair distributional impact, as well as over the reliability of the EPC certificate upon which such differentials would be based. These questions are recommended as the basis for further research.

27. HM Government (2010) The Coalition: our programme for Government. Pg 31. [online] Available at: http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_187876.pdf [Accessed 15 March 2011].