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International evidence review on housing taxation

Transaction taxes and the quality of the private rental sector

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Executive Summary

This review has been undertaken as part of a broader range of evidence reviews for the UK Collaborative Centre for Housing Evidence (CaCHE) and contributes to one of the seven themes of the Centre – Housing and the Economy. More specifically, the report considers the economic effects and incidence of selected forms of housing taxation, with a focus on both the UK and international experience. Previous research from the Mirrlees Review identified five key properties of taxation: neutrality, fairness, transparency, efficiency and practicality. These are discussed in the context of the UK housing market.

Following consultations with a cross-section of external stakeholder experts in the field of taxation, the remit of the review was set in a more focussed manner to examine three aspects that were of relevance for current developments in policy debates on the housing market. The first area was a non-recurrent tax; a property transfer tax. The second was another non-recurrent tax (although there have been suggestions that it could be made recurrent); capital gains tax on chargeable profits resulting from the disposal of residential property. The third area was to examine any evidence from the literature on the interaction between taxation and the quality of the private rented sector. This latter focus was adopted because of the recent rise in the number of private rented dwellings in the UK property market, and the policy need to understand more fully the interactions between the tax system and the quantity, and especially quality, of the growing private rented sector.

The process was to conduct evidence searches. These were undertaken in a systematic manner using key word searches on a minimum of four databases. During this research, we developed a detailed and transparent methodology to capture the best of the academic and 'grey' literature. We searched for English language evidence, irrespective of location. The analysis of the results highlights several findings and allows for the identification of potential gaps.

Across all three areas, the overall conclusion is that while there may be a considerable body of published research, there appear to be relatively few detailed and recent analyses of the effects of these taxes in the housing market. What research does exist very much supports the conclusions of the Mirrlees Review. Transaction taxes are distortionary on a number of metrics, including local housing market mobility, incentive effects on downsizing and reducing transaction volumes. The evidence to date does not appear to support the contention that national labour markets are adversely affected by such taxes in a substantial way.

Evidence on the effects of capital gains tax (CGT) is more limited, and in the UK much discussion centres on possible alternative methods of implementation. The general issue of the effect of CGT on assets is broad, including a wide debate about the general incidence of capital taxes, but in particular the effect of the tax treatment of housing as an asset in comparison to other investments. The extent to which any CGT on housing has a direct effect on economic growth, investment and productivity was considered too broad for the scope of this review, so the study focusses instead on the specific issue of CGT and its effect on the housing market.

The examination of evidence on the effects of taxes on the private rented sector of the housing market, especially on issues such as the quality of the stock and its availability, underscores the initial idea that this is an under-researched area. It appears to be further from what might be termed the ‘mainstream’ of funded academic research but an important policy area worthy of detailed study nevertheless.

One conclusion of this review is that there is scope for more applied research into the effects of specific taxes in the housing market. Differences in tax treatment across countries argue that evidence does not fully translate across borders. Recent advances in the handling and analysis of large datasets may mean that scope for further analysis exists, subject to proprietary data and privacy issues. The UK private rented sector appears to be one area where there are many dimensions of possible analysis but, as yet, few systematic analyses that are formally published.

As a consequence, this report suggests several possible areas for future analysis (or “knowledge gaps”) including how tax policy might improve the quality of the housing stock or make housing more affordable for certain groups in society, irrespective of tenure. In time, data from recent changes to transaction taxes in Scotland and Wales will allow for a comparative analysis on the effects of different systems on different types of buyers and sellers across the UK. Evaluating the process of transition from one tax system to another, and how any change could be achieved with a minimum loss, or gain, to overall economic efficiency, would be an additional area for innovative research. More fundamentally, this raises the question of whether home ownership is good for the economy or society, and, if so, if there is a particular level of owner-occupation that policy makers should target. A richer evidence base would support a more thorough appraisal of potential policy options.

1. Introduction

1.1. Background

This review has been undertaken as part of a broader range of evidence reviews commissioned by the UK Collaborative Centre for Housing Evidence (CaCHE). CaCHE is a multidisciplinary research consortium administratively-led by the University of Glasgow to inform policy makers on questions related to the housing market. The economy is one of the seven themes of the Centre, alongside markets, choice, wider drivers, place, governance and homelessness. The objective of this report is to examine existing evidence in relation to the economic impacts and incidence of housing taxation.

The debate around housing taxation is one that attracts considerable public interest[1], and questions of quality, fairness, availability and affordability are at the forefront. The Barker Review of Housing Supply (2004)[2] looked at, among other things, why house prices increased so much compared to the values of other assets such as equities in the UK since 1946 (Figure 1), and found that the supply of homes was much less responsive to price than in France, Germany and the USA, mainly due to institutional factors. Barker observes that "using taxation as a means to increase the supply of land directly is unlikely to be successful, mainly because the role of the planning system in changing the value of sites reduces the effectiveness of price signals and would create concerns about the fairness of the tax regime".

The Mirrlees Review (2011) of taxation[3], which examines taxation in a wider context and is considered a benchmark report, devoted part of its work to propose potential reform of housing taxation. Two main recommendations emerged: (1) creating a land value tax and (2) taxing the consumption value of housing. In Scotland, Gibb and Christie (2015)[4] undertook an international evidence review on local taxation and singled out the UK as one of the few OECD

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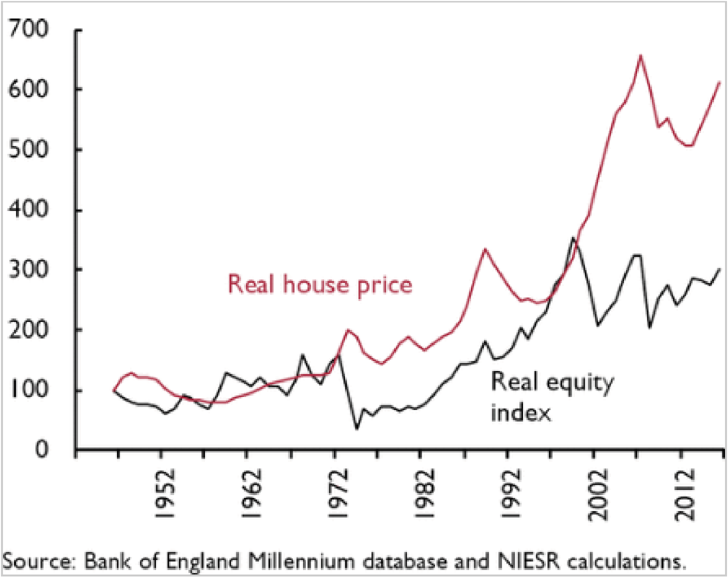
[1] NIESR/RICS/CaCHE conference "The Broken Housing Market" (1 June 2018), https://www.niesr.ac.uk/broken-housing-market-conference-highlights-event-1st-june-2018
[2] K. Barker, Review of Housing Supply: Securing Our Future Housing Needs, HMSO, London, 2004 http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/barker_review_of_housing_supply_recommendations.htm
[3] Mirrlees, J. et al (2011), 'Tax by design', Institute for Fiscal Studies, September (henceforth referred to as 'Mirrlees Review')
[4] Gibb, K. and Christie, L. (2015) 'International Literature Review for the Commission on Local Taxation', University of Glasgow

countries to use only property taxation (in particular council tax) to fund local government, rather than a mix of income tax, goods and services tax and property tax.

Figure 1: Real house price in the UK



Source: Chadha (2018)

While this report examines particular taxes and assesses empirical work on their effects, it is important that some basic principles of a tax system are kept in focus. The Mirrlees Review refers to the 'four canons of taxation' and, in terms of the properties of a desirable tax system, notes these as:

"The way we formulate the objectives of a tax system is to say that for a given distributional outcome, what matters are:

- the negative effects of the tax system on welfare and economic efficiency – they should be minimized;
- administration and compliance costs – all things equal, a system that costs less to operate is preferable;
- fairness other than in the distributional sense – for example, fairness of procedure, avoidance of discrimination, and fairness with respect to legitimate expectations;

- transparency – a tax system that people can understand is preferable to one that taxes by 'stealth'."[5]

The ideas of neutrality, simplicity and stability are ones that help to inform this review. In the context of capital taxes in the housing market, the concept of neutrality is particularly important. The Mirrlees Review notes that "a neutral tax system – one that taxes similar activities similarly – avoids giving people encouragement to shift from high- to low-taxed activities in a way that is economically costly."[6] This is important because to the extent that owning a home is viewed as an investment in a similar way to purchasing equity shares, a tax system that favours owner-occupied housing may have adverse effects on investment in productive capacity.[7]

While neutrality is an important guiding principle, it is not always desirable. The Mirrlees Review notes that "a neutral system minimizes distortions over people's choices and behaviour. In general, it therefore minimizes welfare loss. In a non-neutral tax system, people and firms have an incentive to devote socially wasteful effort to reducing their tax payments by changing the form or substance of their activities. But the promotion of neutrality in the tax system is not always an appropriate end for policy."[8] There may, for example, be some social policy reasons that a government might appear to want a capital tax system that favours owner-occupation. Nonetheless, while neutrality (for example, a system that taxes all forms of savings uniformly achieves neutrality over the form in which savings occur) may not always be required, it is seen as an important benchmark for assessing the tax system.

With regard to taxation of housing, the Mirrlees Review observes that "the tax system in the UK, like that of most modern economies, is full of non-neutralities which are hard to justify, wasteful, and ripe for reform. It distorts choices between debt and equity finance, between capital gains and other forms of capital income, between owner-occupied housing and other assets, between different forms of remuneration for work effort, between different forms of

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[5] Mirrlees Review p 22
[6] Mirrlees Review p 34
[7] This issue is further examined in an applied model by Eerola, E. and Maattanen, N., (2013) 'The optimal tax treatment of housing capital in the neoclassical growth model', Journal of Public Economic Theory, vol 15 (6). They conclude that "in the first-best, the tax treatment of business and housing capital should always be the same." This issue is further examined in an applied study by Evans, A. W., (2012) 'Optimal tax theory and the taxation of housing in the US and the UK', Journal of Property Research, December.
[8] Mirrlees Review p 40

carbon emissions, and between different forms of business organization. These distortions create complexity, encourage avoidance, and add costs for both taxpayers and governments."[9]

In terms of fairness, one important feature for capital taxes brought into focus by the Mirrlees Review is that "of fairness with respect to legitimate expectations. Tax changes that impose unexpected losses relative to previous expectations can be perceived as 'unfair'. This is most often true of capital taxes, which, for example, might reduce the net expected capital gain from an asset, or indeed might reduce the value of assets into whose value a particular expectation of the tax rate has been capitalized."[10] Given the importance of owner-occupation in the UK (63 per cent of households in 2016-7) and the substantial value of housing assets (£5.4 trillion at the end of 2016)[11], any sharp and unexpected change in taxation of housing could fall foul of this view of fairness. This interpretation has been echoed in the recent work on pathways to housing tax reform in Australia.[12]

With these concepts forming a benchmark, the Mirrlees Review discusses another theme of economic research into taxation, that of optimal taxation. This strand of research has played a major role in the theoretical development in public finance literature over the past half century. More specifically, it notes that "economists have expended much effort in the study of 'optimal taxation'… it is important for the approach taken here. It provides a methodology for designing tax systems to achieve the best outcome given the constraints faced by the government."[13] In a critique of the Mirrlees Review, Atkinson[14], commenting in the context of the debate about a higher rate of income tax, notes that "we need to highlight the limits to our knowledge and to seek a closer integration between theory and empirical research."[15] One purpose of an evidence review is to try to address this observation by bringing into focus the

[9] Mirrlees Review p 40
[10] Mirrlees Review p 33
[11] The value of dwellings and land owned by households. Sourced from: Office for National Statistics, UK National Accounts, The Blue Book 2017.
[12] See Eccleston, R., Verdouw, J., Flanagan, K., Warren, N., Duncan, A., Ong, R., Whelan, S. and Atalay, K. (2018) 'Pathways to housing tax reform', Australian Housing and Urban Research Institute, Melbourne, AHURI Final Report No. 301.
[13] Mirrlees Review p 35
[14] Atkinson, A. B. (2012) 'The Mirrlees Review and the state of public economics', Journal of Economic Literature, vol 50, September
[15] Atkinson op cit p 774

sometimes disparate empirical research into the effects of various types of taxation on the housing market in order to help inform the theory and policy debates on the subject.

Economic theory suggests that lump-sum taxes are the least distortive taxes. However, they may not be practical to implement or may be considered ‘unfair’. An example of a lump-sum tax is a poll tax, which is a fixed sum levied on every individual in the economy. The Conservative government introduced such a tax in 1989 to fund local government but it was extremely unpopular and replaced. Diamond and Mirrlees (1971)[16] showed that in a general model of optimal taxation, “if there is diminishing social marginal utility with income, then there is greater taxation on goods purchased more heavily by the rich”. In other words, to the extent that rich people tend to consume relatively more housing (by buying or a renting bigger properties), then their consumption of housing might be taxed at a higher rate. Social utility is of course difficult to measure, and a tax system has therefore to strike a balance between equity improvement (redistribution) and economic efficiency. As average house prices differ considerably across regions, it may also be desirable in terms of economic efficiency to set different tax rates on housing across different regions – a point that Diamond and Mirrlees argued. Another key point is that in an optimal system, the taxation of housing should be considered together with the taxation of other goods, and not in isolation.[17]

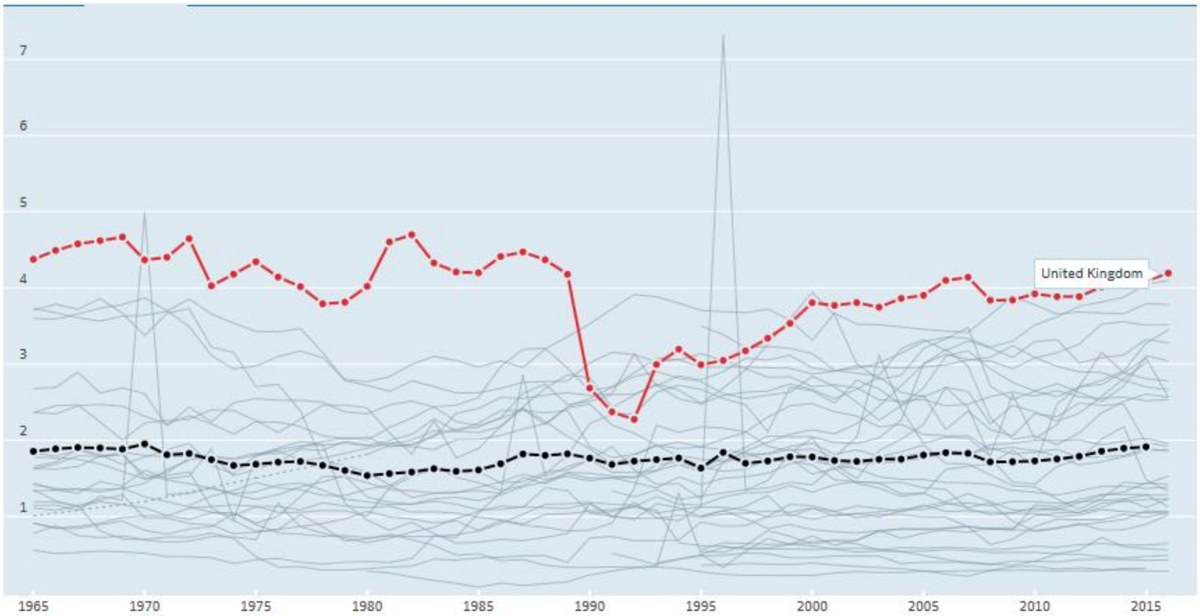
1.2. UK tax system and housing

The tax treatment of housing varies considerably across members of the OECD in terms of key concepts such as complexity, tax neutrality, tenure neutrality, equity and broad macroeconomic issues. One key differentiating aspect of the UK property tax system is that, according to recent OECD calculations, aggregating all recurrent and non-recurrent taxes, the UK taxes property more than any other country in the OECD.[18] Figure 2 shows that property taxes aggregated to over 4% of GDP in 2016 in the UK, twice as much as the OECD average[19]. This represented 12½% of the taxes collected by the British government. At the same time, government spending on housing is also relatively high: at 0.72% of GDP in 2016, it was higher than the OECD average of about 0.5% (Figure 3). Adding the two together paints a

[16] Diamond and Mirrlees (1971) “Optimal Taxation and Public Production”, American Economic Review
[17] Atinson, A.B. (2015). “Inequality: What Can Be Done?”, Harvard University Press
[18] For a different perspective, refer to Gibb K. and Christie L. (2015). “International Literature Review for the Commission on Local Taxation”, University of Glasgow
[19] The high level of property tax income also reflects high property prices relative to income as taxes are based on property prices.

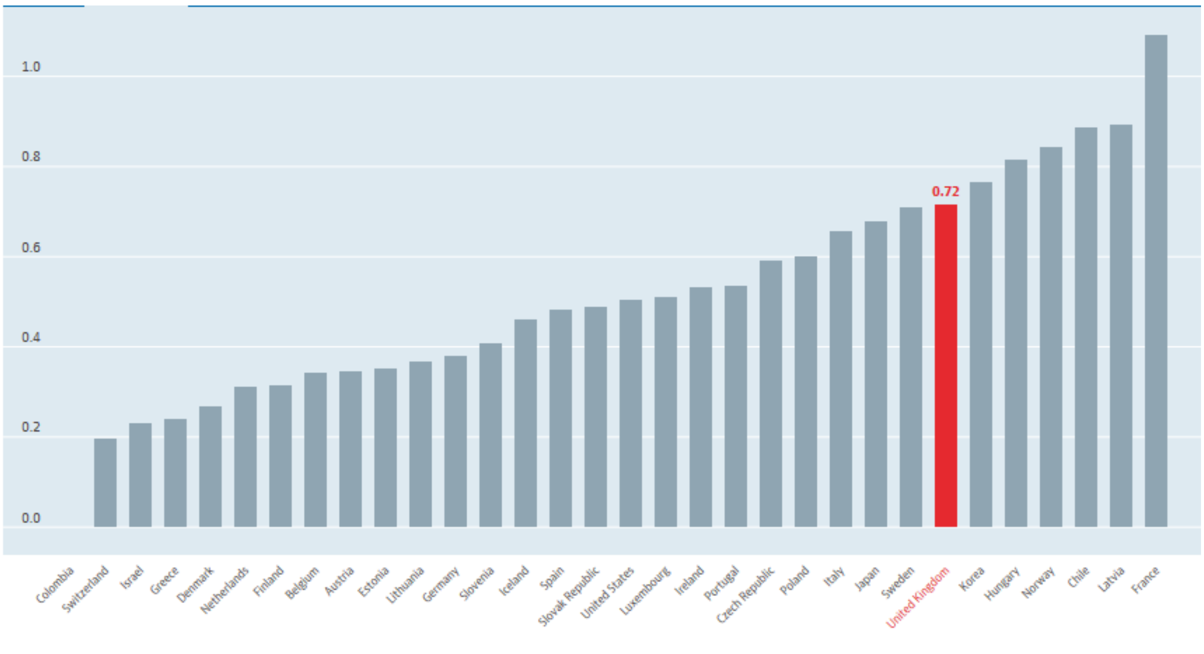
picture of the housing market as an important contributor to public finances in the UK. This raises issues about whether any change in the taxation of housing would be likely to achieve its intended goal, and whether there are lessons that can be learned from the international experience.

Figure 2: Tax on property across OECD countries, % of GDP, 2016



Source: OECD (2018)

Figure 3: General government spending on housing and community amenities, % of GDP, 2016



Source: OECD (2018)

The broad and often overlapping nature of the tax system makes prioritisation of specific policy instruments an ambitious task. Taxation of housing can vary considerably across its life cycle from the purchase of undeveloped land to the buying and selling of residential property. Concerns surrounding housing supply, affordability and tenure choice become particularly acute during market peaks, while the political impetus for change can be less than enduring. At any given point in time, there are several concurrent initiatives affecting housing which make differentiating the impact of any one of these in isolation a challenge. There are important legal, fiscal and cultural differences that need to be considered as well when undertaking international comparisons.

1.3. Key issues considered

Preliminary research[20] quickly established that the broad subject area of housing and taxation subject needed to be narrowed to a few sets of taxes to systematically review the literature and yield interesting insights for policy makers. After consulting with relevant researchers and policy makers, we chose to focus on three evidence themes: transaction taxes, capital gains taxes and whether there is evidence on taxes and the improvement of the quality of the private rental sector. This choice enabled the review to provide more depth on the individual items given the time resource constraint and it was also intended to provide more focus on specific areas of policy relevance.

Transaction taxes are a major issue insofar as the current system of stamp duty in the UK is perceived by some to reduce transactions in the housing market below levels which might maximise welfare. This distorts activity along multiple dimensions by not ensuring neutrality in the tax burden implied – either horizontally in terms of tenure or vertically relative to current incomes, not to mention intergenerational considerations. Examples of the questions that have been raised include: what are the trade-offs and costs associated with such distortions? How do changes to stamp duty rates affect homeowner, investor, landlord and tenant behaviour?

The recent growth of housing as an asset class via vehicles such as real estate investment trusts (REITs) and property authorised investment funds (PAIFs), and the rise of buy to let

[20] Soaita, A. M., (2018) 'Fast literature mapping: housing taxation in the UK and the OECD countries', CaCHE Working Paper, February.

investing, have raised the issue of how capital gains and income are treated for different individuals, particularly regarding taxation. Considerations of neutrality and equity depend crucially on whether housing is treated alongside other forms of business investment which typically receive tax relief, or indeed whether it is appropriate to give such reliefs. Recent government policies have focused on encouraging owner occupation while deterring purchases of housing for investment purposes. The annual tax on enveloped dwellings (ATED) is aimed at deterring indirect purchases of housing by offshore investors, e.g. through a company, to avoid or minimise taxes by raising an annual levy on houses valued at more than £500,000 and charging a higher 15 per cent rate of stamp duty land tax (SDLT) on acquisition.[21] In addition to a capital gains tax on the disposal of UK rental property, both measures are geared at offshore investors and designed to create neutrality with UK resident investors. Issues such as capital gains rollover, and whether there is enough of an income base for this tax to materially make a difference, play a role in motivating our survey of academic research into this theme as well.

At a strategic level, government has recently shifted the tone of policy towards providing more property for rent rather than purchase given difficulties for many in saving for a deposit. It can be argued that the current value added tax (VAT) regime acts as a disincentive to refurbishing existing properties or bringing them to an appropriate standard relative to building. For example, the purchaser of a major interest in a new building pays no VAT, but repairs and maintenance related to an existing building attracts VAT at a rate of 20 per cent. It is, however, not clear *a priori* that if neutrality were to be achieved, how it would be achieved. This debate might be set against the background of recent events such as the Grenfell Tower fire in central London which have cast renewed focus on expenditure on safety issues which can add significantly to costs of initial building or refurbishment. In a situation where owner-occupation remains tax advantaged relative to renting, we examine the academic evidence on the effects of taxes on the quality of private rented accommodation to ascertain whether there are studies that examine the quality of the tenant experience and whether there is any evidence on how such taxes influence the level of investment in private rental properties.

As a general context, there are five main taxes on housing in the UK: stamp duty, capital gains tax, council tax, inheritance tax and VAT on repairs. Stamp duty is a transactions tax based on the transaction price. Capital gains tax is payable on the nominal increase in the value of

[21] https://www.gov.uk/guidance/annual-tax-on-enveloped-dwellings-the-basics

a house (generally) excluding an owner occupiers' main dwelling: most house sales therefore do not attract this tax. Council tax is a recurrent tax based on the assessed or imputed value of a property and paid by the occupier (rather than owner) to the local authority, not the central government. Inheritance tax is payable on the total value of an estate, of which the house often constitutes the main part, but with major exemptions for the value of property passed on to descendants. While VAT is not charged on the purchase of houses themselves, it is charged at the standard rate of 20% on materials and labour for any repairs or construction work relating to an existing building. In terms of revenues, Council tax yielded in 2016-17 the highest revenue at £30.4 billion, stamp duty was £11.9 billion (excluding Scotland) and inheritance tax was £4.8 billion. Revenues from capital gains tax on property sales and VAT on repairs and maintenance are not detailed in the UK budget tables[22] but are likely to be much lower in comparison.

1.3.1. Taxation of transactions of residential property

In the UK, the taxation of residential property when it is bought (Stamp Duty Land Tax, or 'Stamp Duty,' in short) has become a prominent feature of public policy debate. In part this is because as house prices have risen over time rates of transfer tax have been held relatively constant[23], and so both the tax paid by a buyer on an average transaction and the tax revenue received by the government have risen. This has raised issues of the effect of the tax on affordability, with related distributional consequences, and on the economic efficiency of either the tax itself or its particular rate structure.

Until recently, the particular form of Stamp Duty in operation over the past two decades had raised issues of the interaction of tax bands within particular house price points. Changes to the 'slab' system were made in 2014 in response to efficiency and distributional concerns. Recently, Scotland and Wales have announced different systems of stamp duty to England, recognising the unique characteristics of the housing markets in those regions and the

[22] Autumn Budget 2017, table C5, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/661583/autumn_budget_2017_print.pdf
[23] See https://www.gov.uk/guidance/stamp-duty-rates-on-land-transfers-before-december-2003 and https://www.stampdutyrates.co.uk/historic-rates.html

different political powers.[24] In recent years, some temporary abatements of Stamp Duty at specific house price levels have been used to assist particular purchaser groups (primarily first-time buyers). There is a sense at the macro scale that tax policies, to the extent that they are inconsistent with economic efficiency and tax neutrality, may bias investment decisions, possibly help stimulate house price bubbles and house price volatility, and 'lock' some people out of the housing market. Evidence on the effects of similar taxes in other countries might help to guide policy in the UK and are examined in the evidence review.

1.3.2. Taxation of any gains in house value due to house (or land) price increases

The rise of housing as an asset class for owner occupiers and investors raises many social and economic policy questions which can be explored in an evidence review, including the ways in which the UK might learn from international experience. The issue of how the gains in net wealth from increases in the value of residential houses (or the land on which they stand) are treated by the taxation system, and what effect this treatment has on the economy and society, is important in so far as it may affect economic efficiency and distributional considerations. For example, if tax-advantaging housing leads to over-investment in housing and the under-accumulation of productive capital, then this may have an impact on longer-term productivity performance. Moreover, over-investment (or under-investment) in and over-accumulation of housing (recognising that such a judgement may be subjective) by some groups could have implications for occupation patterns and the efficient allocation of the existing housing stock, tenure choices and the provision of both owner-occupied and rental accommodation.

This area was a key one for the Mirrlees Review. It is also a focus of attention because house price increases over the past three decades have significantly raised the wealth held in residential housing, and accumulated capital gains therefore have become very large for some

[24] The Scottish Parliament Information Centre published a report ('Why Are Taxes So Hard to Predict?', November 2014) which considers the difficulties in forecasting tax receipts from the Land and Buildings Transaction Tax.

households.[25] The spatial distribution of house price increases and their demographic effects add another dimension to the interest in this issue from a social policy perspective[26].

1.3.3. Taxation and the private rented sector

The composition of the housing stock between private rental, public rental and owner-occupier has changed dramatically in the last hundred years in England. At the end of the First World War, about 90 per cent of the housing stock was rented privately and the rest was owner-occupied[27]. The proportion of owner-occupiers steadily increased to reach a peak of 71 per cent in 2003 according to the English Housing Survey 2017, before easing back to 63 per cent in 2016-17. The recent decline in the ratio of owner-occupation was associated with a revival of the private rental market and affected mainly the younger portion of the population: among 35 to 44-year olds, the proportion of owner-occupiers declined from 72 per cent in 2006-07 to 52 per cent in 2016-17, and from 57 per cent to 37 per cent for those aged 25 to 34.[28]

While broader economic and social factors are likely to have been the major reasons behind this change, taxation may well have played a part in this sizeable shift from an 80+ year trend of renting to increased owner-occupation either by encouraging owner-occupation or disadvantaging the private rented sector. Tax neutrality is difficult to judge over such a long period of economic change, but the position of housing taxation has changed over time. With the changing tenure pattern in the UK and the near-ending of council house building, an issue that has moved to the spotlight more recently has been the quality of the private rented sector, in terms of new residential building for rent, existing purpose-built rental accommodation and the converted residential housing (or commercial) stock. While quality of accommodation is a difficult concept to define precisely, various issues about quality have long been associated with (some of) the private rented sector, so the recent growth of the sector and concerns about whether taxation might have a more meaningful role to play with regard to quality of such housing have become issues of focus.

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[25] ONS (2014), Chapter 3: Property Wealth, Wealth in Great Britain 2010-12, London, ONS.
[26] The Resolution Foundation published a report ('Home improvements: action to address the housing challenges faced by young people', April 2018) which examined issues in the private rented sector for younger UK households.
[27] King (1980) 'An econometric model of tenure choice and demand for housing as a joint decision', Journal of Public Economics, Vol. 14
[28] Refer also to Soaita A, Searle B, McKee K, and Moore T (2016), "Becoming a Landlord: Property-based Welfare and Vulnerability in the Private Rental Market in Great Britain," Housing Studies 32: 613-37.

1.4. Methodology

The methodological approach adopted here was that of a systematic evidence review. Relative to previous reviews within the literature, we made some methodological improvements to make the review process more transparent and complete. In non-technical terms, the process undertaken was to search relevant databases based on keywords that best matched the specific subject areas and then to extract those studies that indicated they included the most conclusive evidence by geographical location and methodology.

Additional information and details explaining this process are contained within the Annex to this report.

1.5. Evidence gaps

An important part of this review was to identify areas for potential research. The major gaps that we identified from this process are:

- There seems to be a gap between what might be termed 'big picture' policy statements regarding tax reform possibilities and evidence on which to judge the incidence of any tax changes. Perhaps the advent of additional microeconomic datasets that can be readily accessed will extend the reach of future research on these issues. This opens the role for CaCHE to champion such projects as part of its wider research agenda.
- Given the recent growth of the private rented sector in the UK (in terms of absolute size and share of households), it is perhaps understandable that evidence has not yet had time to be gathered, analysed and published by the academic community. It is also possible that academic research and research funding priorities have not yet recognised this as an active area for specialist research. Given the change over the past decade in tenure patterns, this seems a priority area for research. On the specific issue of the quality of accommodation examined here, there appears to be a dearth of comparable international evidence.

2. Transaction taxes on residential property

2.1. History and international comparison

Taxes on the transfer of land (and housing) have a long history in the UK, originating in the process of raising taxes from the process of stamping official documents. Stamp duty as a broad duty was introduced in England in 1694 as a means to initially fund the Nine Years' War against France. This duty was to be paid on documents which transferred certain kinds of property, and on some other legal documents as well. The Stamp Duties Management Act 1891 and the Stamp Act 1891 ensured that documents liable to Stamp Duty were not registered or used unless they had been duly stamped[29].

Over the years, the scope of the stamp duty has decreased, and in December 2003 a “stamp duty land tax” (SDLT) was introduced to cover land transactions only. This replaced residential stamp duty and operated by having a series of different tax rate bands based on property values called the ‘slab’ system. Andrew et al (2003)[30] criticized this system because it was “distorting the price distribution of transactions” by “bunching prices” just below the thresholds.

In response to growing criticism along these lines, the Chancellor of the Exchequer announced in the 2014 Autumn Statement that the ‘slab’ system would be replaced by a graduated system whereby tax would be paid on the marginal amount above various price thresholds rather than at a single rate on the total price of the property.[31] Another proposal of Andrew et al (that was not implemented) was to index the thresholds on house price inflation. Without indexation, the burden of the stamp duty increases when house prices increase because it leads to an increase in the average effective tax rate.

According to a comparison done by the European Commission in 2012[32], the average level of transaction tax is rather higher in the UK than in most other EU countries, as highlighted in Table 1.

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[29] http://webarchive.nationalarchives.gov.uk/20140206163254/http://www.hmrc.gov.uk/so/manual.pdf
[30] Andrew, Evans, Koundouri and Meen (2003) “Residential stamp duty: Time for a change” Council of Mortgage Lenders Housing.
[31] Scotland introduced a “land and buildings transaction tax” in April 2015 with different rates and thresholds, https://www.revenue.scot/land-buildings-transaction-tax.
[32] Johannesson-Linden and Gayer (2012) Possible reforms of real estate taxation: Criteria for successful policies, European Commission Occasional Papers 119, October 2012. Note that this was before the 2014 reform to SDLT.

Table 1: Property transaction tax average rates in the European Union.

≥ 10%	6-8%	3-5%	1-2%	0%
Belgium, Italy and Greece (with exemptions)	Portugal, Spain, Luxembourg, France and **United Kingdom**	Austria, Czech Republic, Denmark, Finland, Germany, Hungary, Ireland, Latvia, Malta, Slovenia and Sweden	Ireland, the Netherlands, Cyprus	Estonia, Slovakia, Bulgaria, Lithuania and Poland

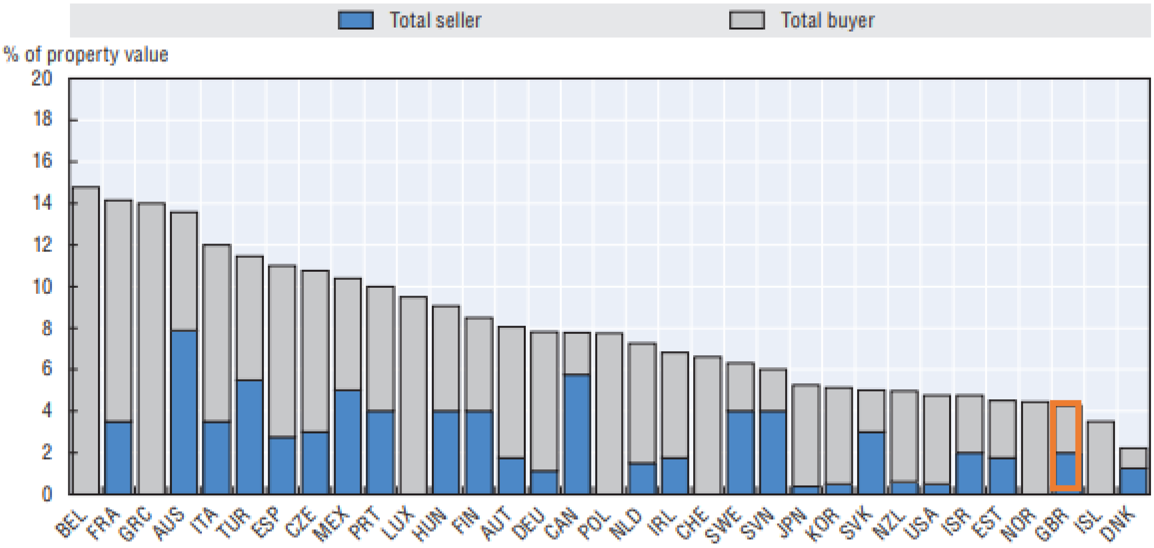
Source: European Commission (2012)

In the USA in 2004, 34 states and the District of Columbia imposed some form of property transfer tax, while for a number of US cities and states, property transfer taxes account for a non-trivial share of revenue. In Canada most provinces impose a land transfer tax.

While taxes on property transfers increase the cost of the transactions, other factors contribute as well. Johansson (2011)[33] compared the total cost of residential property transactions across countries, adding transfer taxes (e.g. stamp duties, acquisition taxes, etc), fees incurred when registering the property in the land registry, notary or other legal fees, and real estate agency fees, split between buyers and sellers. The research found that according to that metric, transaction costs were actually moderate in the UK compared to other OECD countries: in 2009, transaction costs were in the UK slightly above four percent of the value of property, compared to 14.5 percent in Belgium (Figure 4).

[33] Johansson (2011) ‘Housing and the economy: Policies for renovation’, OECD

Figure 4: Property transaction costs across OECD countries, split between buyers and sellers (2009)



1. Transaction costs refer to average costs. The estimates do not take into account the various tax breaks that exist in countries for certain dwellings implying that the estimated cost may overestimate the actual cost in some countries (for example in Italy) where such tax breaks are frequent. In addition, VAT when applied to certain costs is not included due to data limitations.

Source: Johansson (2011), OECD

2.2. Literature review

In the UK the transaction tax is generally referred to as "stamp duty" or "stamp duty land tax" (or, in the case of Scotland, "land and buildings transaction tax"), while other countries use "registration tax", "transfer tax" or "conveyance tax". We searched these five expressions in four databases: ProQuest/IBSS, Science Direct, EBSCO Discovery and Google Scholar. The final search expressions and results are reported in Annex: Methodology and results .

Transaction taxes have the potential to alter the behaviour of buyers and sellers. When the situation of a household induces it to move to a property of different size or location, the household will have to consider the cost of paying this transaction tax, in addition to the difference in price between the new and old property. As this cost is potentially non-trivial, it may lead to a household delaying or cancelling its planned transaction. For example, a household that could potentially find a better paying job in a different location may decide not to pursue this opportunity because of the additional cost of moving home to take up the job in the different location. The impact of the property tax on households' behaviour may therefore have significantly negative effects on economic activity as agents fail to take advantage of value-creating opportunities. The same revenue and distributional effect could be obtained at a lower distortionary cost by taxing income (including capital income) or the consumption of housing services.[34]

2.2.1. Direct impact on the housing market

There is a large body of international evidence that stamp duty has a substantially large negative effect on turnover in the housing market. In particular, a stamp duty increase nearly always leads to a reduction in the number of transactions and house prices. In the US, Benjamin et al. (1993) examined the effects of an increase in the Real Estate Transfer Tax on transaction prices in Philadelphia. On the basis of around 350 transactions, they found that properties located inside Philadelphia decreased in price relative to properties outside and that this decrease was much larger than the tax increase.

Besley et al (2014) and Best and Kleven (2018) found that the SDLT holiday in the UK in 2008-09 stimulated property prices and transactions. Besley et al (2014) estimated that about sixty percent of the "surplus from a tax holiday accrued to buyers, and that there was a strong short-term effect of the cut in SDLT on increasing transactions but that this effect was short-lived and mostly due to a change in the timing of transactions." Best and Kleven (2018), using data from 2004 to 2012, found that, in the short-term, the impact of changing stamp duty was large on housing transactions and prices. They argued that reducing stamp duty had a larger multiplier than reducing any other tax. Examining the system of price bands in the UK SDLT, they concluded that transaction taxes caused large distortions to the price, volume and timing of housing transactions. Berger et al (2017)[35] report a similar finding for the US, while noting that "transaction taxes on assets are widely discussed but remain understudied". This view may reflect the rather widespread use of such taxes, but a seeming relative lack of academic empirical investigations cited by previous authors.

There is similar evidence of the impact of transaction taxes on the residential housing market in Australia, where this tax is called 'conveyance duty'. The Australian case is particularly enlightening for the UK because its housing market shares many of the characteristics of the British market. For example, the ratio of owner-occupation was 65% in Australia in 2016, compared to 63% in the UK. In 2004, the Western Australian state government implemented

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[34] Diamond and Mirrlees (1971) "Optimal Taxation and Public Production", American Economic Review
[35] Berger D., Turner N. and Zwick E. (2017), 'Stimulating housing markets', National Bureau of Economic Research Working Paper 22903.

a conveyance duty exemption for first-home purchases of less than $220,000 and a reduced rate for first-home purchases up to $300,000. In addition, purchases of vacant land by first-home buyers of less than $100,000 became free of conveyance duty and a reduced rate became available for purchases up to $150,000. Costello (2006) studied the impact of this reform on residential housing demand in Perth. He found, using data from the Perth metropolitan area, that this reform expanded demand for the specified cheaper house price segments by 21%, with spill overs to other price segments too. He also found that the announcement of this reform two months before its implementation led to a weakening of demand for cheaper houses as households were postponing their purchase plans to benefit from the tax break. Davidoff and Leigh (2013) found similarly that a ten per cent increase in stamp duty lowered turnover by three per cent in the first year, and by six per cent if sustained over a three-year period.

The real estate transaction tax in France has the feature that it is proportional to the sale price, and not as progressive as in the UK. In 2014, a reform was implemented that allowed local authorities (called *départements)* which collect this tax to increase the rate from 3.8 per cent to 4.5 per cent. Most of the *départements* implemented this tax increase but did so at different points in time. Bérard and Trannoy (2017)[36] measured that, where the tax increase was implemented, the anticipation effect led to an increase in the tax base of 28 per cent in the month before the tax increase, and a reduction in the tax base of 7 per cent on average in the 8 months after the reform.

In 2006, Germany decentralized the management of its real estate transaction tax from federal to the state level. Each of the sixteen German states is now entitled to receive the tax revenue and set its own rate. Since then, some states have kept the rate at 3.5 per cent while others have increased it up to 6.5 per cent. Petkova and Weichenrieder (2017)[37] exploited these state differences to examine the tax effects on state-wide indices of property transactions and transaction prices. They found that the effect depended on the type of accommodation: single-family houses or apartments. In Germany, about ⅔ of households live in an apartment but 81 per cent of owner-occupiers live in a single-family house[38]. The turnover of apartments is higher than that of single-family houses, and this is why one might expect the effect of a

[36] Using a difference-in-difference analysis
[37] Using a panel regression
[38] Source: Petkova and Weichenrieder (2017)

transaction tax to be stronger on the apartment market. They concluded that those states that implemented an increase in the transaction tax rate saw a reduction in transaction volume for single-family houses[39] but not for apartments. The effect on prices was reversed: the price of apartments decreased, but not the price of single-family houses. To explain this seeming discrepancy, they proposed the following explanation: "They may reflect that, in contrast to single-family houses, apartments may be viewed as capital investments where an increase in the transaction tax leads to a loss of asset value."

Other studies of transaction taxes in Canada (Dachis et al, 2012) and the Netherlands (Van Ommeren and Van Leuvensteijn, 2005) also showed that such taxes reduced turnover and house price growth.

One of the sometimes stated policy objectives of a property transaction tax is to reduce house price volatility: by increasing the cost of transactions, it may reduce the incentive to speculate and dampen price volatility. To test this hypothesis, Chen (2017) compared house price volatility among US states with different transaction real estate transfer tax rates. He found that while housing price volatility was indeed lower in states that imposed a higher real estate transfer tax, the result did not hold after controlling for known economic and demographic factors, such as income, population growth, mortgage rates, property taxes, and jobless rates. House price volatility is not desirable from a macroeconomic point of view because a large fall in house prices may lead to a reduction in households' consumption, stress in the banking system and a sudden reduction in economic activity. But the research from Chen suggests that a transaction tax is probably not a good instrument to reduce house price volatility.

A measure more targeted at curbing real estate volatility was the introduction in Hong Kong and Singapore of a 'Special Stamp Duty' (also called 'Seller's Stamp Duty' or SSD) to tax property transactions for properties that were sold less than two years after they had been bought. The hope was that SSD would help cool down the rise in property prices. Hua and Craig (2011)[40], found that the effect was very small and argued that a more effective macro policy tool might have been a regulated loan-to-value ratio. Hui et al (2017), separating the effect according to the size of properties, found that the SSD still exerted statistically significant downward pressure on property prices of high-value properties (such as apartments larger than 70 m^2) but less so on smaller housing units (smaller than 70 m^2) in the long-run. However,

[39] A one percent increase of the tax rate leads to a fall of 0.23 percent in the number of transactions.
[40] Using an error correction model.

in the short-run, the impact of SSD on housing price seemed muted. Comparing the segment of the real estate market where transaction taxes were increased to reduce speculation to a relatively unaffected control group, Fu et al (2016) found that the rise in transactions cost, equivalent to a two- to three-percentage-point increase in transaction tax, reduced speculative trading in the treatment segment by 75% but that it also raised its price volatility by 18%. This result suggests that speculators may be better informed than others in the market and that their activity may help to create an effective market pricing process.

2.2.2. Indirect impact on labour market

Transaction costs may also have an indirect impact on the labour market via the 'lock-in effect': if transaction costs are high, people may prefer not to buy or sell their house in order to avoid paying transaction costs. As house transactions are frequently related to the location of potential jobs, a reduction in the number of transactions may have social costs in terms of mismatch between the demand and supply for labour, leading to unemployment in some places and not enough workers in other places.

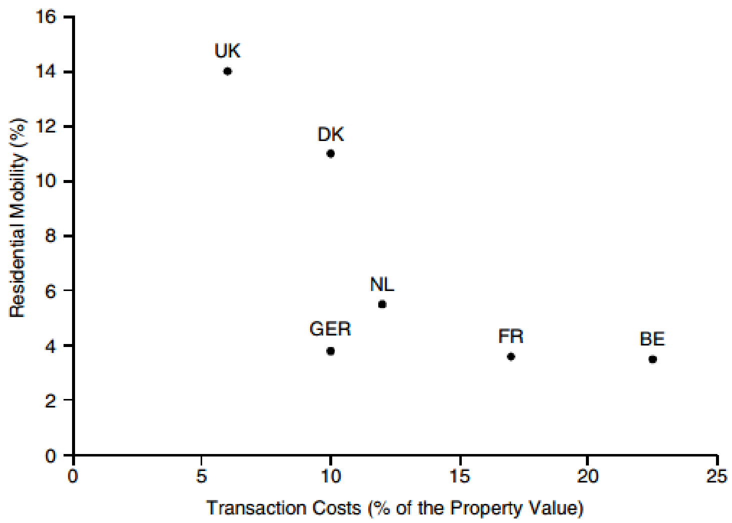
Van Ommeren and Van Leuvensteijn (2005) studied the impact of transaction costs on residential mobility in the Netherlands. They noted that, at the time of their study, the buyer of a property in the Netherlands had to pay a "tax equal to six per cent of the value of the property", which represented half of "the total monetary transaction costs (the sum of the taxes and the fees)". They defined residential mobility as "the number of owners' moves divided by the number of owners". Comparing several European markets, Figure 5 suggests strong negative effect of transaction costs on residential mobility. For example, they noted that "in the United Kingdom, transaction costs are much lower, and residential mobility rates are much higher than in other European countries." Using micro-economic data from 1990 to 1997 in the Netherlands and a duration model, the authors managed to find a similar effect and quantified it: "a one percent-point increase in the value of transaction costs - as a percentage of the value of the residence - decreases residential mobility rates by eight percent for owner-occupiers". This implies that "mobility rates would be 50 percent higher in the absence of the current six percent ad-valorem buyer transaction tax in the Netherlands"[41].

The rental sector is of course different from the owner-occupier sector in that the transaction costs are much smaller: moving in a rental accommodation only involves paying a deposit and

[41] Van Ommeren and Van Leuvensteijn (2005)

a rental agency fee, both of which are negligible compared to estate agent broker fees and stamp duties involved in purchasing a house. Distinguishing between households who went from ownership to ownership and from ownership to rental, the authors found that it did not significantly change the quantitative effect of transaction costs on mobility. However, when splitting further their data of households moving to rental accommodation between those moving to rental 'permanently' (considered as voluntary movers) and those moving to rental 'temporarily' (i.e. for a short period before moving back to ownership), Van Ommeren and Van Leuvensteijn found that "the marginal effects of transaction costs was higher for voluntary residential mobility than for residential mobility in general". As the housing and labour markets can be very different between countries – flexibility of the labour market and geographical size of the country, to cite only two factors – the authors warn that their results may not extrapolate directly to other countries: "To what extent our estimates for the Netherlands can be generalized to other countries remains open to debate."

Figure 5: Residential mobility decreases when transaction costs increase



Source: Van Ommeren and Van Leuvensteijn, 2005

Another key metric of the labour market is unemployment. Oswald (1999) showed that countries with a high-level of home-ownership tend to have higher unemployment rates. The link via mobility, especially over longer distances, is part of the explanation for the result. Using data from a representative household sample of fourteen European countries covering the period 1994-2001, De Graaf and Van Leuvensteijn (2013) found that transaction costs in the housing market were positively associated with the probability of becoming unemployed, confirming that high transaction taxes could have a negative impact on the labour market.

For the UK, Hilber and Lyytikainen (2017) examined the effects of the SDLT on mobility, separating short- and long-distance moves. Consistent with previous studies, they confirmed that SDLT had a statistically significant negative effect on mobility. More interestingly, they found "that this adverse effect is confined to short distance moves and to moves that are housing-related. We find no significant effect on job-related moves." They noted that stamp duty may lead predominantly to misallocation of dwellings in local housing markets, in particular deterring what might be termed 'discretionary' home moves rather than 'job-related' (most likely longer distance) home moves. In addition, transfer taxes on residential property were judged to be an inefficient way of collecting tax revenue. But the impact of SDLT on the functioning of the labour market may be limited in the context of a lower effect on long distance moves. They noted that there have been few studies on this effect on mobility which, in itself, may be an interesting comment if productivity is enhanced by increased labour mobility across regions.

2.2.3. Reform proposals

Recognizing the evidence that a transaction tax is an inefficient tax, in terms of change Lester (2013) proposed to turn it into an "energy efficiency transfer tax" by bundling it with a tax reduction on energy saving projects. Wood et al (2006) argued that replacing SDLT by a land tax yielding the same revenue would in theory be more efficient. Stephens (2016)[42] did not provide any empirical estimates but argued that "while the purchaser formally pays the tax, it is likely that a good deal (if not all) of its cost is borne by the seller. The tax formally reduces the purchasing power of the buyer, and therefore reduces the price that the seller can command". This is somewhat stronger than the (subsequent) findings by Besley et al (2014) who found that about sixty per cent of the surplus from a tax holiday accrued to buyers.

A report by Scanlon et al (2017) for the Family Building Society noted that SDLT raised £8.4 billion in England for the government in 2016-17, more than the existing capital gains tax or inheritance tax. This highlights the importance of the revenue from SDLT to the government, likely meaning that a decision about a fundamental change to the tax would present difficulties. Scanlon et al demonstrate the progressive nature of the tax and the bias of revenues coming

[42] Stephens, M. (2016) 'Submission to the House of Lords Select Committee of Economic Affairs Inquiry into the Economics of the UK Housing Market: evidence prepared on behalf of the Joseph Rowntree Foundation', London.

from the South of England, notably Greater London. However, they review previous academic research on transfer taxes which note that its effects are to reduce the number of transactions, and they observe that this means that “some desirable and welfare-enhancing reallocations of the housing stock do not take place.”[43] In particular, SDLT “may discourage older owner-occupiers from moving to smaller homes, especially as these smaller homes may well be no cheaper. This results in a less efficient allocation of the housing stock.” Scanlon et al refer to modelling work on SDLT done by HMRC, estimating that a 1% change in the average SDLT rate would led to a 1.4% change in house prices and a range of effects on transactions from 1.5% to 3.5%.

The main part of the research by Scanlon et al comprised a survey of building society customers. While SDLT ranked highly as a factor in determining whether a household would consider a home move, it was the 3% surcharge on buying a second home that was reported as a very important factor in determining whether a household would actually downsize. This surcharge is potentially refundable, but the refund has a time limit and some households were concerned both about the up-front cost and the uncertainty related to the prospects for selling a home within the refund period.

3. Capital gains tax

3.1. Facts on the taxation of gains in residential property due to price increases

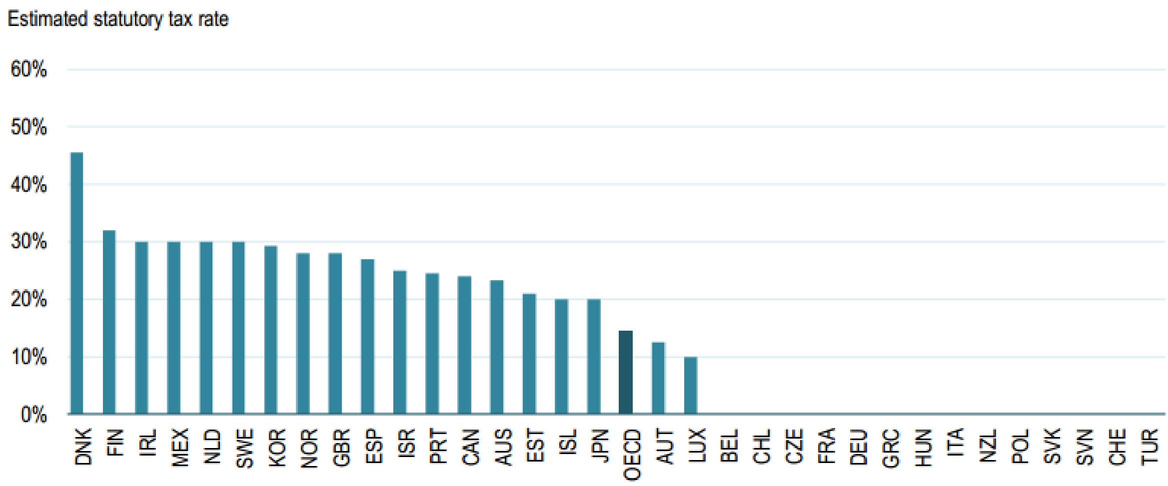
Capital gains on profits realised due to the appreciation of residential property between the time it was bought and either the current date or the time it is sold are taxed differently across countries. If the property is the tax payer’s primary residence, then the gains are exempted from tax altogether in some countries like the United Kingdom (other countries in the European Union include: Belgium, Denmark, Estonia, France, Germany, Greece, Italy and Netherlands). Where there is no exemption, it is generally the nominal amount of the capital gain that is taxed. In some countries, this nominal amount may be adjusted for acquisition, interest costs, depreciation or inflation. There are sometimes deductions for expenses on maintenance or improvement costs. Chile, Israel, Mexico and Portugal tax the real rather than the nominal

[43] Scanlon et al (2017)

amount of capital gains by adjusting the amount of the acquisition price for inflation over the holding period[44].

The duration of holding of the property may impact the tax treatment. Greece, New Zealand and Switzerland do not tax capital gains except in particular circumstances such as where the asset was bought for the purposes of resale. Gains are tax-exempt after a certain holding period in Austria, Czech Republic, Finland, Poland, Slovakia and Slovenia, and tax-exempt or deferred if reinvested in Portugal, Estonia and Sweden[45]. Some countries have progressive tax rates according to the holding period. Figure 6 shows a cross-section of the statutory tax rates on real property (excluding primary residence) in 2012 as estimated by Harding (2013).

Figure 6: Statutory tax rates on real property (excluding primary residence) in OECD countries, 2012



Source: Harding (2013), OECD

3.2. Literature review

In this section, we investigate the literature on the impact of capital gains tax (CGT) on residential housing and housing investment and tenure choices, for both domestic and foreign investors. The subject of taxes on the increase in the value of a property has a long history in the academic economics literature.

[44] Harding, M. (2013), "Taxation of Dividend, Interest, and Capital Gain Income", OECD Taxation Working Papers, No. 19, OECD Publishing, Paris.
[45] Johannesson-Linden and Gayer (2012) Possible reforms of real estate taxation: Criteria for successful policies, European Commission Occasional Papers 119, October 2012.

Holt and Shelton (1961) looked at whether investors' who were sitting on a comfortable paper profit may decide not to sell their asset, even if they think it may decrease in value, because they are afraid that the immediate loss incurred by paying capital gains tax may not be compensated by other investment opportunities. This is called the 'lock-in effect'. They did not, however, include relevant empirical details. Focusing on the housing market, King (1980)[46] argued that "the effective tax rate on accrued capital gains is likely to be very small because the property is often held for a long period, and the benefit from deferring payment of taxes until the gain is realised means that the effective tax rate is much less than the nominal tax rate on capital gains." As a result, King did not include the taxation of capital gains at all in his model of tenure choice and demand for housing. Weiss (1978) used a household production approach to describe the choice between renting and owning a house. His theoretical model demonstrated that an exemption from tax on capital gains (and imputed rents) encouraged self-production of housing services (owner-occupier) and raised the equilibrium rent and the price of houses. Kanemoto (1985) developed a theoretical model of residential development where a representative landowner sells land for residential development to a representative consumer. At the time of the sale, a tax is levied on the capital gains that the land has earned. Kanemoto showed that an unanticipated rise in the tax rate reduces the price of housing and causes a decrease in the amount of land that the landowner is ready to put to sale. Hoyt and Rosenthal (1990) confirmed when modelling the demand for housing that it was necessary to take into account the cost of CGT in the budget constraint faced by households. They argued that ignoring CGT leads to inefficient estimates of the elasticity of demand for housing.[47]

Burman, Wallace, and Weiner (1997) reported that "while several authors have noted that capital gains taxes distort housing decisions, there is very limited empirical evidence available to support the theoretical claims". Their empirical model[48] concluded that CGT distorted the decisions of two to five percent of sellers, which is arguably small. They note that Morrow-Jones (1997, reported as a personal communication by Burman et al) found in her survey of

[46] King (1980)
[47] Hoyt and Rosenthal argue that, in technical terms, CGT potentially gives rise to a kink in the household budget constraint which can play an important role in the optimal choice.
[48] This model is based on data provided by US sellers who filed a Form 2119 in 1993 to report a home sale, used probit regression equations to quantify elements of a sequential choice problem faced by homeowners: move or stay; given move, buy or rent; given buy, move up in price or down; given move down, how much housing to purchase. These choices were modelled as functions of the capital gains tax rate, the tax rate on ordinary income, other housing costs, and demographic variables.

Columbus, OH, in 1995 of sellers who purchased another home (all sellers, not just those who filed Form 2119 to report a home sale) that 17.2 percent of the 80.7 percent who moved up in price would have considered buying a less expensive home if there were no CGT.

In Australia, Duncan et al[49] note that “currently, the Australian tax system offers preferential income tax treatment to both owner-occupiers and own-to-invest properties. Owner-occupied properties are exempt from many taxes, including CGT.” In terms of evidence on the impacts of the system, the authors comment that the 2010 Review of Australia’s Future Tax System (known as the Henry Review)[50] noted the difficulties in assessing overall impacts because of the complex ways in which tax-transfer policies interact within the housing market.

The Taxpayer Relief Act of 1997 (TRA97) was a major reform of capital gains tax in the USA. It reduced the CGT rates (the top marginal long-term capital gains rate decreased from 28% to 20% and the 15% bracket was lowered to 10%) and increased the threshold of exemption for the sale of personal residences. The TRA97 also removed a previous exemption that favoured people moving up the property ladder: before the reform households could defer the payment of the CGT on the sale of their principal residence if they purchased a home of equal or greater value within two years; they were then eligible for a one-time exemption of up to $125,000 of gains once they reached the age of 55. With the TRA97, all sales of personal residences up to $500,000 for married couples and $250,000 for singles were permanently exempted from CGT, irrespective of whether the seller was subsequently moving to a more expensive or less expensive home. Sinai (1997) doubted the efficacy of the reform and predicted that the cut in CGT “would not induce families to trade down if they would not otherwise have moved”. Newman and Reschovsky (1987) demonstrated that the 1978 capital gains exemption for household heads or spouses older than 55 from the profit of the sale of their primary residence did not lead to a significant increase in downsizing, even though this was the stated objective of the reform.

The early findings of Bier et al (2000) seem to concur with Sinai’s prediction: looking at the residential property market in four Ohio cities, Bier et al estimated that the removal of this bias

49 Duncan, A., Hodgson, H., Minas, J., Ong, R. and Seymour, R. (2018) ‘The income tax treatment of housing assets: an assessment of proposed reform arrangements’, Australian Housing and Urban Research Institute, Melbourne.

50 Henry, K., Harmer, J., Piggot, J., Ridout, H. and Smith, G. (2010) ‘Australia’s future tax system: Final Report’, Commonwealth of Australia, Canberra.

led to an increase in downsizing in only one of the four cities. Most of the increase in sales actually concerned people who moved to more expensive properties. Biehl and Hoyt (2014) confirmed that the increase in sales volume as a result of the cut in capital gains tax was not primarily driven by households' downsizing[51]. They estimated that home sellers slightly under the age of 55 were 6.2% more likely to move for a less expensive house to maintain, 6.6% less likely to move for a larger place, and 5.2% more likely to reside in a condominium after TRA97's enactment, relative to those slightly over 55. These quantitative results seem to concur with King's earlier assertion that effective tax on accrued capital is small and, therefore, the distortions of this tax on households' decisions to buy smaller or larger houses can be expected to be limited.

Studying the impact of this reform on the volume of property sales, Quayes (2010) and Shan (2011) showed that, as expected, the capital gains tax relief had a positive impact on sales volumes. Quayes[52] found that the reform led to an average increase in sales volumes of between seven and nine percent. Cunningham and Engelhardt (2008)[53] showed that households where the head was in his/her early 50s were more likely to move after the reform: the mobility rate increased by around 1 to 1.4 percentage points, which, for a mean mobility rate of four percentage points, represented an increase of 22 to 31 percent. Because households move infrequently, even a small distortion to their incentives can change their mobility pattern significantly. Farnham (2006)[54] and Shan (2011) estimated a hazard model of the probability of moving which took into account the estimated capital gain. Their results went in the same direction as Cunningham and Engelhardt: owner-occupiers with higher capital gains and gains subject to taxation were less mobile.

In terms of the optimal taxation approach, Evans (2012) argues that the current position is in the direction of neutrality and concludes that "when land is taken into account over-investment in housing is not encouraged in the UK either." Evans goes further and notes that "the degree of distortion [from neutrality] in the UK has been much reduced by the elimination of mortgage interest tax deductibility… the distortions caused by Stamp Duty, Capital Gains Tax and Value Added Tax would seem to be minor". Andre (2011) supports this view and argues that "as an

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[51] They used a similar difference-in-difference approach around 1997.
[52] Using a model of housing sales based on personal income, interest rates and consumer price and regressed it on US monthly data from April 1971 to December 2006.
[53] Using a difference-in-difference approach
[54] Farnham M (2006), "Essays in aging, taxation, and residential location". Ph.D. Dissertation, University of Michigan

investment good, owner-occupied housing does not seem to be excessively advantaged, as other investments also benefit from exemptions on dividends and capital gains". Evans notes that "the major distortion would appear to result from the way in which the UK tax system favours the wealthier and older as against the younger and poorer" – implying that equity (equal treatment) is more of a concern than neutrality.

Using a different approach to the issue of neutrality[55], Armstrong et al (2017) argue that non-neutrality prevails – "mortgage debt does seem to crowd out pension saving" and "shifting the composition of UK savings towards business investment might have substantial benefits for UK economic performance in the long-run."

As noted earlier, different countries have different systems for taxation with regard to housing. New Zealand does not tax capital gains (except foreign debt and equity investments), which is a major competitive advantage compared to other countries and makes it an interesting case study. Coleman (2010) developed a model[56] to analyse the expected impact of the introduction of capital gains taxes on the housing market. Four variants of a capital gains tax regime were considered differing according to whether (1) owner-occupied housing would be taxed or exempt; (2) capital gains would be treated as income and taxed at households' marginal income tax rates; or (3) capital gains would be taxed at a flat rate. New Zealand's top marginal income tax rate is 33%; the proposed flat tax rate is 20%. In this model, households choose whether to buy or rent based on their expected lifetime income, the expected house and rent price appreciation, and their (limited) ability to borrow. To ensure that the new CGT does not weigh down on households' income, it is compensated by an equivalent reduction on goods and services tax (GST) so that it is revenue-neutral for the government.

According to this analysis, "capital gains taxes raise rents, increase home-ownership rates and cause a substitution towards smaller houses," whatever the settings of the CGT. Higher rents make owning a house more attractive, hence the increase in owner-occupation. Furthermore, "a capital gains tax scheme that exempts owner-occupied housing has lower welfare for most people than one which does not." This is because the CGT raises much more revenue when there is no exemption, which allows the government to reduce GST significantly

[55] Armstrong, A., Ebell, M. and Warren, J. (2017) 'Is an Englishman's home his pension?', National Institute of Economic and Social Research, November
[56] He develops an overlapping generations lifecycle model.

and compensates renters for the rise in rents. Additionally, it is possible that CGT may have non-desirable distributional consequences: as a policy that encourages homeownership, it may have some negative impact on younger and low-income households who cannot afford to get on the property ladder due to credit constraints, leaving them stuck with higher rents. Overall, the author estimated that the effect on economic welfare of introducing a capital gains tax in New Zealand would be negative because the welfare losses to the renters from the higher rents would exceed the benefits to the owners, as there are more young renters than young owners.

Capital gains tax (CGT) might also have a wider impact on financial stability. Gholizadeh (2014), using a cross-country analysis over the period from 1991 to 2004, found that CGT was negatively correlated with housing price bubbles, suggesting that the tax could be used as a policy tool to prevent or reduce house price bubbles.

Bourassa and Grigsby (2000) discussed the arguments for and against the elimination of CGT from sales of houses within their broader discussion about all tax incentives targeted at owner-occupiers. Noting, as before, that tax systems have a number of possibly conflicting objectives, they argued that the administrative complexity of accurately collecting this tax, and the fact that it generally does not take into account inflation, justified the exemption for owner-occupiers except for very large capital gains.

Our systematic literature review has highlighted that CGT, where it is applied, has small distortionary effects on the residential housing market, leading some households to be less mobile than they would otherwise have been. However, if it is accepted that almost all taxes are distortionary, the issue on this point may come down to judging complexity against the scale of the distortionary effect. Since some studies found that CGT tends to dampen house price volatility, this might make it a potentially interesting policy tool, especially in volatile circumstances. But a more general equilibrium approach would be required to ascertain the overall impact of CGT on the economy.

4. Can taxes improve the quality of the Private Rental Sector?

4.1. UK experience and international context

Taxation systems in many countries favour owner occupation over private renting. As rapid house price appreciation over the past decade has brought issues of affordability to the forefront, some governments have sought policies to improve the provision of rental accommodation. This includes subsidies and tax frameworks that better support landlords and tenants. The deductibility of mortgage interest and operational costs, depreciation allowances, lower tax on rental income, and the ability to offset rental losses against other types of income are examples of how governments can reduce the cost of owning and managing rental property. However, governments will also be aware of the need to balance the possibility that buying housing for renting where such incentives exist may not be neutral when competed with investing in other, productive assets or may result in favourable tax treatment when compared with some owner-occupiers; and they may have other policy objectives such as supporting first-time buyers.

Housing allowances in the form of income-related assistance to private tenants can be beneficial to landlords as well through increased rental income and a reduction in the risk of arrears and eviction costs. How these allowances are apportioned across tenures can influence the likelihood of households favouring the rental market over ownership particularly at lower levels of income, but the international experience seems to suggest that these effects may at best be neutral or at worst self-reinforcing (Whitehead et al, 2012).

The tax treatment of rental income varies and can depend on the size of a countries' PRS, but a recent cross-country analysis (Scanlon and Whitehead, 2016) concludes that landlords in the UK are treated less favourably than those in some other countries. In many countries, residential property is a perpetual asset and private landlords are treated like other investors, but in the UK rental losses are not allowed to be offset against other types of income and depreciation is limited to the wear and tear of furnished accommodation only. Another disadvantage is the lack of a lower tax on rental income, with individual landlords paying their marginal rate compared to a flat rate of 20% for corporates. Until 2017, mortgage interest in the UK had been deductible in full as a business expense but this tax relief now comes in the form of a 20% credit. The UK has also become more stringent on other types of expenditures that landlords are permitted to deduct, limiting these to direct financial payments that exclude the do-it-yourself (DIY) repairs and management often undertaken by individual landlords. A final area of difference in the taxation of residential property and other physical investments relates to the treatment of capital gains which are taxed at a higher rate for individuals than for companies.

In addition to the recent changes to mortgage interest deductibility, the UK now limits the ability of private landlords of fully furnished accommodation to offset expenditures against rental incomes. Previously, this tax relief was offered as a 10 percent deduction to gross income on a self-certified basis, but as of April 2016 only expenditures incurred are allowable. While it may be too soon to assess the longer-term impact of these tax revisions, particularly as the mortgage interest deductibility change is being phased in over a four-year period, it is unlikely to incentivise private landlords to further invest in the sector (which may have been the government's initial intention).

4.2. Previous initiatives to develop good quality private renting accommodation

In the UK, the private rented sector (PRS) has grown in recent years: in 2016-17, 4.7 million, or 20 per cent, of English households lived in private rental accommodation according to the English Housing Survey 2016-17. The PRS is generally of lower quality than owner-occupied housing: 18 per cent of owner-occupied properties and 13 per cent of social homes are considered to fall below the Decent Homes Standard[57] – much lower than the 29 per cent of privately rented homes.

This situation reflects incentives and market power. Because they are personally impacted by the quality of the dwelling, owner-occupiers have a strong incentive to renovate their house so that it meets at least a 'common' minimum standard if they can afford it. In the private rental market, it is the responsibility of landlords to incur the costs of renovation, but it is the existing tenants who reap the immediate non-pecuniary benefits. It may be only when their property is empty, and they are looking for a new renter, that landlords have an immediate incentive to renovate, partly to influence the search process positively but also if they can then pass on the cost of renovation in the form of higher new rents. Even so, this pass-through is likely to be only partial, because, like in the discussion of the market for lemons popularised by Akerlof (1970), the person wanting to rent may find it difficult to differentiate between well-maintained and badly-maintained properties. Certainly, renters' information on future renovations is limited.

Studies have over time shown that the owner-occupied sector has a higher quality level, but the quality of the PRS in the UK has improved compared to twenty years ago**.** The proportion of sub-standard homes in the private rented sector dropped from forty-seven per cent in 2006 to thirty per cent in 2013 partly after the government introduced the Decent Homes Standard

[57] https://www.gov.uk/government/publications/a-decent-home-definition-and-guidance

(aimed primarily at social housing), accompanied by an increase in funding to help landlords improve the quality of homes[58]. While the funding went predominantly to landlords in the social sector, it had a knock-on effect on housing standards across the board. Since 2013, however, the rate of improvement appears to have plateaued, with a decrease of barely more than one per cent. The Green Deal Finance scheme launched in 2011 is one scheme that has the potential to further improve the quality of the PRS by allowing energy efficiency improving maintenance work to be financed without any cost to the landlord, hence partly removing the incentive problem.

In another initiative, the British government established in September 2012 a Build to Rent Fund[59] of £200 million and a PRS Housing Guarantee to promote the development of rental housing. In its consultation paper[60], the Department for Communities and Local Government explained that improving the quality of the PRS is one of the primary objectives of this policy: “Build to Rent schemes are built and professionally managed on a scale that typically allows a higher level of services (e.g. on-site concierge) and amenities (e.g. communal space) to be offered to their customers. For apartments, the investor is incentivised to maintain not only the apartment itself, but also the building and the wider public realm; and, because the business model is primarily based on income rather than capital gains, to attract and retain customers by offering a good service.”[61]

A unique example where government used tax incentives to change behaviour in the property industry occurred in 1984 when the Inland Revenue (now a part of Her Majesty’s Revenue and Customs) changed its practice of treating furnished holiday lettings to a business activity assuming that owners can prove they are running a trade. This measure was introduced to

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[58] https://www.independent.co.uk/news/uk/home-news/private-rental-homes-health-safety-standards-fail-third-landlords-lease-flats-houses-a7883016.html#gallery

[59] In Scotland, a similar pilot scheme run by the Scottish Futures Trust provides a guarantee to repay 50 per cent of rental income in the first three years.

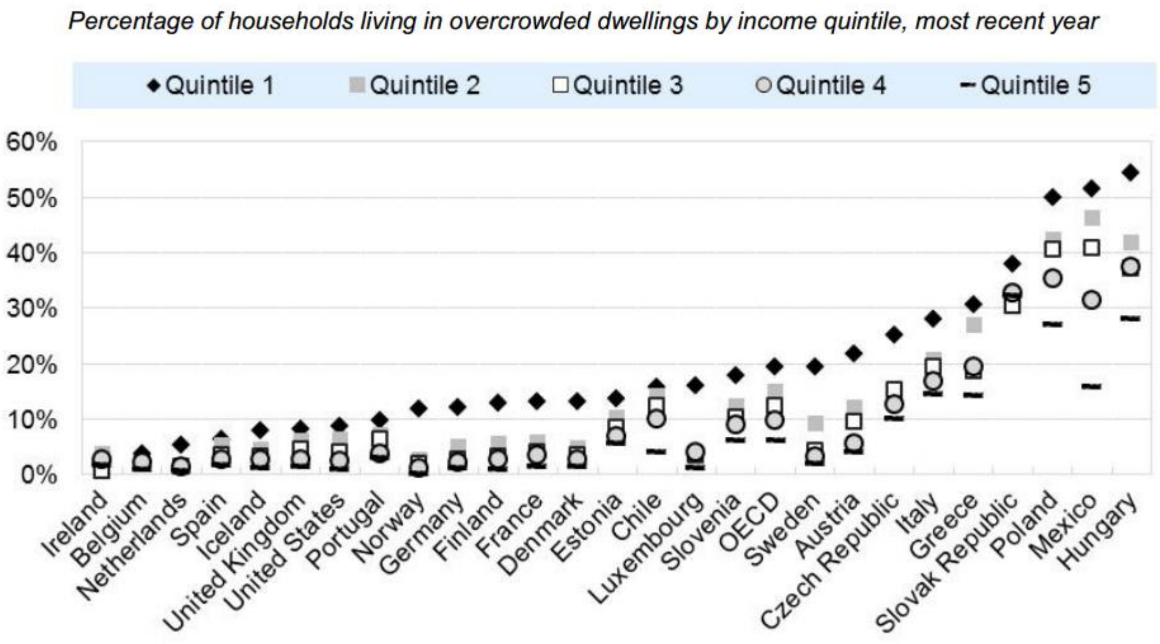
[60] Department for Communities and Local Government, “Planning and Affordable Housing for Build to Rent: A consultation paper,” February 2017.

[61] See also Department for Communities and Local Government (2012), ‘Review of the barriers to institutional investment in private rented homes’, August

improve the quality of holiday housing following a number of fatalities and remains in force today.[62]

The issues of the quality of accommodation, how it is to be measured and how various taxes might affect it are not straight-forward. Differing international regulations and perhaps cultural norms may lead to a property that is perceived as 'too small' in one country being 'adequate' in another. It is not easy to find international comparisons of the quality of private rented sector accommodation. One possible measure, overcrowding, measured as the proportion of households living in overcrowded dwellings, shows that this is lower in the UK than OECD average, according to Salvi del Pero et al (OECD, 2016)[63], and even lower than in Germany and the United States (Figure 7). These data are not, however, purely for the private rented sector.

Figure 7: Overcrowding rates across income quintiles in OECD countries.



Source: OECD, 2016

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[62] https://www.gov.uk/government/publications/furnished-holiday-lettings-hs253-self-assessment-helpsheet/hs253-furnished-holiday-lettings-2015

[63] "Policies to promote access to good-quality affordable housing in OECD countries"

Kain and Quigley (1970) said that “difficulty in measuring the physical and environmental quality of the dwelling unit and surrounding residential environment is perhaps the most vexing problem encountered in evaluating the different attributes of bundles of residential services. These problems are so serious that the Bureau of the Census omitted all measures of dwelling unit quality from the 1970 housing census.” To circumvent this difficulty, they developed an index[64] of housing quality based on three surveys of approximately 1,500 households and dwelling units in the city of St Louis from the summer of 1967. These surveys asked residents and building inspectors to rate the quality of different aspects of the dwellings. This index was then used to analyse how much quality contributes to the average price of a residential property. They found that “the quality of the bundle of residential services has about as much effect on price of housing as such objective aspects as the number of rooms, number of bathrooms, and lot size”[65].

4.3. Literature review

While the question of the quality of the PRS is high on policy makers’ concerns in the UK, our systematic search found that the literature, particularly with regards to taxation, contained substantially fewer international evidence sources than the other two subjects studied in this review. Our search yielded 22 articles, and the search methodology and results are detailed in Quality of the private rental sector.

In the US, Curry and Gensch (1975) used a net present value investment model calibrated on the data from the Pittsburgh neighbourhood to show that landlords did not have an economic incentive to renovate the dwellings that they hold. Because there was an almost infinitely elastic demand for low income housing, it was more profitable for landlords to let the quality of the dwellings decay slowly rather than undertake renovation. To increase the quality and quantity of the PRS, Curry and Gensch argued that municipal authorities should give tax incentives to landlords to renovate, and local authorities would recoup their expenses with increased property income. The authors, however, did not model which tax incentive would be most efficient. Gupta and Rea (1978)[66] studied the impact of a property tax abatement whereby the landlord would save three years of property tax on the amount he or she spent

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[64] The method used is factor analysis.
[65] Kain and Quigley (1970) “Measuring the value of housing quality,” Journal of the American Statistical Association, Volume 65, 1970 - Issue 330
[66] Gupta, Dipak K., and Louis M. Rea. "Investment Decision in the Central City: A Consideration of a Property Tax Abatement Law, The." Fordham Urb. LJ 7 (1978): 253.

on the renovation of a dwelling. The result of their investment decision model estimated in Pittsburgh metropolitan area was mixed: the tax abatement was found not to be effective in inducing investment in either depressed or wealthy neighbourhoods but could be effective in "grey areas" – old neighbourhoods with declining population.

The policy objective of improving the quality of rental accommodation often involves focusing on low-income households as they are the more likely to live in sub-standard accommodations. One such scheme was the low-income housing tax credit (LIHTC) that was launched in 1986 in the USA to help low-income household afford a better-quality accommodation. Most of the literature about this scheme has focused on the neighbourhood effect, rather than on the quality of the overall PRS: when a LIHTC development is completed, what is the impact on crime, schools and property prices in the neighbourhood? For example, middle and upper-income households sometimes expressed a concern that LIHTC might lead to deterioration in the quality of their local schools when low-income families moved into the neighbourhood. Di and Murdoch (2013) found no statistical evidence that the opening of LIHTC units negatively impacted the performance of nearby elementary schools, measured by campus-level standardized test scores and performance ratings.

When a property or an estate is owned by several people, it may be difficult to reach an agreement on a renovation/refurbishing plan, even if it would be a project of positive NPV, because (1) at least one of them may be liquidity constrained; (2) at least one of them may be willing to sell soon; or (3) they might struggle to decide on which work to start and in what sequence.

Kutty (1995) developed a theoretical dynamic model of a landlord's decision to invest in the maintenance and rehabilitation of housing, considering property as an investment good. This model took into account uncertainty about future rental prices. The conclusion was that, in the case where adjustment costs were convex, the best level of housing quality was achieved when landlords chose a smooth path of reinvestment. The author did not specifically model taxes on reinvestment but suggested that because regular landlord reinvestment was optimal, then tax should aim at reducing the cost of reinvestment in maintenance and rehabilitation.

The search was unable to locate any substantial empirical evidence that reducing value added tax on repairs and maintenance improves the quality of the housing stock. The experience of European countries EC (2003) shows that a reduction in VAT is only partially reflected in prices, implying an increase in construction companies' profits and, in the cases where there was a slightly positive impact on demand, the cost to the Treasury in terms of forgone tax revenues was high.

With regard to VAT on housing, Andre (2011) notes that “tax neutrality considerations would support charging VAT on new homes, especially as VAT is charged on repair, maintenance and improvements of existing homes… homes seem to benefit from a more favourable tax treatment as a consumption good, than as an investment vehicle”. It is interesting that he does not argue for abolishing VAT on repairs and maintenance.

An often-overlooked aspect of housing quality is how it deals with natural disaster. The experience of Japan with earthquakes is enlightening. The very low frequency of such an event makes it difficult for landlords to internalize the cost of making the necessary preventive works to render the building earthquake-proof. In that case, public policy and, in particular, tax policy has a role to play. This was studied by Nosse Hirono (2008) – while the article was written in Japanese, we were able to read the abstract in English.

Expanding the search beyond tax policies (by removing the keyword ‘tax’) yielded some results about what other policies may impact the quality of the PRS. Though outside the scope of this review, it is important to note that there is a very large literature on rent control. We provide here just a few references of this literature. Gyourko and Linneman (1990) for New York City, Sims (2007) for Massachusetts, and Andre (2011) found a negative correlation between the establishment of rent controls and housing quality. Kutty (2007) found more ambiguous results using a dynamic reinvestment model. In particular, he found that the discouraging effect of simple rent control on housing maintenance can be mitigated by provisions in rent control ordinances that reward quality improvements, and/or include the enforcement of housing quality codes.

5. Conclusions

Two features of economic life in the UK that provoke popular and political debate are housing and taxation. As individual topics, both are multi-faceted. However, combining the two appears to raise, rather than reduce, the number of issues for debate. This evidence review began with the broadest remit of 'housing and taxation,' but it quickly became evident that in order to provide a systematic review within a strict timetable and limited resources, the issues of interest needed to be narrowed in focus. Accordingly, two specific taxation issues were chosen for detailed examination: taxes that could be termed 'non-recurrent', i.e. transaction taxes and capital gains tax, with a principal focus on the housing market rather than the wider macroeconomy. Given the recent growth of the private rented sector in the UK, an additional systematic search was conducted on this topic.

The first contribution of this review is the methodological approach with which the evidence has been gathered and analysed. We used a searching and filtering strategy that is both transparent and reproducible. We developed our own tools combining functions in Excel and EndNote to cover a large but still, within limited resources, manageable review for the size of the body of literature. The algorithm detailed within the report and annex was designed to converge to give most of the good quality evidence both in the academic and 'grey' literature. We used the best available databases to which we had access but discovered that those databases contained a significant amount of errors, omissions and duplicates. We tried to flag most of these either through automatic filtering in Excel or manually. Our iterative process of finding the most suitable key words enabled us to collate and analyse the most relevant articles.

Any search process will have limitations, and it is important to note that, in addition to time resources, one limitation of the process of our review is the scope of the 'grey literature' covered. This arises for two reasons. Firstly, the databases that we had access to did not cover all the 'grey literature', and our results naturally reflect this feature. For example, some UK real estate agents or specialized think tanks produce a substantial body of research that is incompletely included in databases such as the ones that are widely used in academic studies. Second, although we dedicated some time to search the 'grey literature', this was in general not as fruitful as the academic-based research searches because much of the research identified was of unverifiable quality in terms of peer-reviewed validation for inclusion in a scientific evidence review.

The main findings of this international evidence review, and the gaps identified, are:

Stamp duty and capital gains tax can be thought of as working through similar channels, increasing the cost of transactions. If they reduce the number of transactions below the optimal level, this can lead to a potential misallocation of stock and relative reduction in the mobility of the labour force. This can also lead to a reduction in the price of residential properties as it makes housing a less attractive asset at the margin. However, most taxes are distortionary, and whether the distortions affecting housing are larger or less desirable than in other markets is still an unresolved issue. An area for future research would be ascertaining the extent to which taxes on housing such as CGT have a direct effect on broader macro indicators such as economic growth, investment and productivity.

Conversely, the exemption of capital gains tax that benefit primary residences boosts house prices, and it is not clear why housing should be considered differently from other asset classes from a taxation perspective, as the Mirrlees Review argues. More broadly, there appears to be a preferential tax treatment for owner-occupiers, with no taxation of imputed rent and deductibility of mortgage interest payments from income tax (although this is no longer the case in the UK). This encourages households to own their home, but it is not clear whether policy makers should target a particular level of owner-occupation.[67]

A relatively more recent stream of literature concerns the relationship between financial stability and the taxation of housing. It was found that capital gains tax may dampen rapid house price appreciation, and hence reduce the likelihood of a subsequent financial crisis. Stamp duty was found to be an ineffective instrument in reducing house price volatility. Hong Kong and Singapore tried to rein in booming house prices by introducing a special stamp duty, for properties that sold less than two years after being bought. Empirical studies found that far from reducing house price volatility, the measure led to its amplification.

There appears to be a general lack of academic empirical analysis and evidence on the private rented sector of the housing market and, in particular, how various taxes might affect the quality of accommodation. Indeed, defining ‘quality’ in this context does not appear to be

[67] See O’Sullivan A. and Gibb K. (2012) ‘Housing taxation and the economic benefits of homeownership’, Housing Studies, further on this point.

standardised either across or within countries. In the UK, this may be partly due to the relatively recent increase in the PRS, whereby this only gradually becomes an area for research.[68]

The searches found little academic research on the interaction between national and international taxes, and the effect on the decision of non-UK residents to invest in the UK residential property market in what might be termed ‘active’ and ‘passive’ owner-occupation and for rental purposes. This extends to UK households investing in residential property overseas as well. This cuts across the three types of issue examined here and, given the policy interest in this issue, may be a ‘gap’ for further study.

Virtually all the evidence we collated was focussed on trying to understand the behaviour of agents in the housing market. However, the state of the research seems to fall short of answering in a definitive way current important policy questions in the UK such as: how can we improve the quality of the housing stock, or how can tax policy make housing more affordable for certain groups in society? This argues that there is still scope for further research in this field.

Following the Barker Review of Housing Supply in 2004[69] and the Mirrlees Review in 2011, reforming the housing market is high on the political agenda in the UK.[70] The Mirrlees Review proposed fundamental changes to the taxation of housing by introducing a land value tax and a housing services tax to replace the existing system. In 2015, Scotland replaced the UK SDLT with the Land and Buildings Transactions Tax (LBTT). This has different rates and bands from the SDLT which suggests that some comparative work could be undertaken when there is sufficient data. Since April 2018, a Land Transaction Tax (LTT) has replaced SDLT in Wales. These introductions could offer a promising avenue for research, with the differences between

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[68] CaCHE is currently undertaking work to investigate the potential for big data to dramatically increase the evidence base for monitoring and assessing how local markets in the UK private rented sector are operating. Working with major letting databases with UK coverage, the project critically assesses the scope for developing such a database and attempts to establish key indicators and to run them for specific contrasting local markets and sub-markets. This will then be assessed for usefulness by a range of potential users. (http://housingevidence.ac.uk/our-work/research-projects/monitoring-changes-in-the-uk-private-rented-sector/)

[69] See also Muellbauer J. (2004) ‘Property and land, taxation and the economy after the Barker Review’, Joseph Rowntree Foundation, York.

[70] Refer to Department for Communities and Local Government (February 2017), “Fixing our broken housing market,” a housing white paper setting out the government’s plans to reform the housing market and boost the supply of new homes in England.

the systems potentially providing economists the opportunity to undertake innovative research on the effects of transaction taxes on different types of buyers and sellers.

Finally, it is interesting to note that taxation and housing is an area of active policy discussion elsewhere. In the context of housing tax policy reform, recent Australian work appears relevant. A recent paper from the Australian Housing and Urban Research Institute on pathways to housing tax reform[71] noted that "the popular and well-established strategy of subsidising housing consumption for both owner-occupiers and investors now represents a significant cost to the federal budget." While it argued that "over the longer term it is possible to transition to a broad-based recurrent property tax", it also noted that there were practical problems with such a transition – "according to policy stakeholders, one of the greatest barriers in transitioning from transfer duty to a recurrent property tax is the *process* by which this transition is accomplished, rather than the second order issues of a recurrent property tax being more 'visible' to tax payers, or that asset rich but cash poor home owners would struggle to pay." This suggests that another possible evidence gap relates to the process of transition from one tax system to another. Within such a context, one could evaluate equitable tax treatment and how any change could be achieved with a minimum loss, or even a gain, to overall economic efficiency.

[71] Eccleston, R., Verdouw, J., Flanagan, K., Warren, N., Duncan, A., Ong, R., Whelan, S. and Atalay, K. (2018) 'Pathways to housing tax reform', Australian Housing and Urban Research Institute, Melbourne, AHURI Final Report No. 301.

6. Annex: Methodology and results

The initial decision was database selection. We chose four databases to which we had access, and which provided a wide range of articles, papers, reviews and reports on the subject of housing and taxation: ProQuest/IBSS, Science Direct, EBSCO Discovery and Google Scholar. As Google Scholar performed much more poorly than the other three databases at identifying different versions of the same articles, we did not use it in our searches regarding the private rented sector (PRS) and capital gains taxes, but we retained it for transaction taxes as it provided key results that the other three databases did not contain.

Secondly, we developed our search formula within each database based on keywords and logic operators. This was an iterative process that involved starting with generic keywords and expanding or reducing the scope of our search at each step based on the relevance and quantity of the results that the search was producing. Starting with a wide search allowed us to capture the diversity of topics and methodologies discussed in the literature. We searched in the abstract of an article when there was one, and in the title and subject fields when there was none available. Doing so was made necessary by the fact that older articles tended not to have an abstract. We did not search in the full text as it would have returned so many false positives and would have been much more time intensive. Because each database had its own search engine and its own focus, we had to undertake a process of optimizing our search formula for each database, resulting in four different search formulas per topic.

The fact that this review was concerned with international evidence provided its own challenges in the choice of keywords. For example, the transaction tax on housing is called “stamp duty land tax” (or “stamp duty” in short) in the UK but other countries refer to similar taxes as “registration tax”, “transfer tax” or “conveyance tax”. We restricted our searches to those articles written in English. To limit our search to the residential real estate market, we added different keywords such as property, real estate, housing, residential, homeowner, and second home; housing proved to be generally a good keyword to cover the housing market. We found the results to be very sensitive to the choice of keywords. As an example, we had to exclude the expressions “House of Representatives” and “White House” from the search for “house” as they referred to pieces of legislation that may or may not have anything to do with our subject.

The iterative process can be described as follows: when search S_1 returned an article A_1 that referenced another article A_2 on the same subject that was not in the output list of search S_1, we would search for A_2 in the same database and, if found, ascertain which keyword could be added to search S_1 to capture A_2 as well as A_1. The resulting search S_2 would capture both A_1 and A_2, and we would start over again until all the articles judged relevant were captured. Conversely, if the search returned an article that was off-topic, we would look to understand where the ambiguity came from and then either modify our keyword accordingly or add an exclusion field. We would repeat this process until the off-topic articles were excluded. In contrast to many other systematic literature reviews, we did not confine our search to the top 50 or 100 (or some other arbitrary number) results returned – we used everything. We did this because the sorting of results by Google Scholar (or others) according to 'relevance' is not transparent: the algorithm used is not publicly disclosed. To illustrate the point, search engines like Google use very complex and proprietary algorithms that return different results based on previous searches. We therefore consider that our method is robust, reproducible and more appropriate for a systematic literature review.

We then grouped the results based on the type of publication: academic journal, general publication, book, newspaper article and specialized publication. Science Direct and Google Scholar only return academic journal articles, but ProQuest/IBSS and EBSCO databases have access to the other types of publications that are often called 'grey literature': newspaper articles, speeches by experts at conferences and reports from private organisations. The categorisation of the Mirrlees Review provides a case in point as it does not readily fall under the headline search terms that were used, and it is not, strictly speaking, an academic journal.

In our search process, we started with academic journals and then expanded to the 'grey literature'. As the 'grey literature' is much larger and more heterogeneous in quality, we did not have the resources to systematically evaluate every article. We therefore systematically excluded from the search results newspaper articles because we judged that they generally contained opinions and not analysis or evidence. What we did, for each search iteration and publication type, was to judge based on the title of the article whether it was likely to contain any relevant evidence. If this was deemed unlikely, the publication was excluded. This suggests that searching 'grey literature' is a complex process due in part to size and the difficulty of ascertaining the content of a finding in a way that is not too time intensive. Moreover, we excluded all non-English publications, even when an abstract was available in English. Although filters on country of origin were initially applied, this did not narrow our search and risked excluding some interesting evidence so in the end we did not exclude any country.

The final step consisted of combining the results of the searches on the different databases using EndNote and Excel, removing duplicates. We used as keys the authors' name and the publication year as is common in academic publications. Sometimes articles from the 'grey literature' had no author's name provided: this was the case with some newspaper articles. In that case, we used the publication name as a substitute for the author. No methodology is perfect, and we had sometimes to correct Chinese and Dutch names that EndNote found difficult to extract.

The result is an explicit, rigorous and transparent methodology that should help to ensure that the evidence being assessed is as complete and representative as possible. It must be recognised that not all evidence will be located by this search process. However, the benefits of this approach are of the inclusiveness and transparency of the search process, and the fact that it makes the results open to scrutiny, replicability and constructive criticism. This offers researchers a springboard for further investigative study, provides scope to combine searches from different databases to enhance understanding of the evidence, and provides some insight on the extent of evidence gaps which could promote future research.

6.1. Transaction tax

In the UK, the transaction tax is generally referred to as "stamp duty" while in other countries "registration tax" or "transfer tax" is used. We searched these four expressions in four databases: ProQuest/IBSS, Science Direct, EBSCO and Google Scholar. To restrict our search to the residential real estate market, we added different keywords: property, real estate, house, housing, residential, homeowner, owner-occupier. At the end of the iterative process, the keyword 'housing' alone returned the most relevant articles except in ProQuest/ISS where we needed to add 'real estate tax'. On occasion, we corrected Chinese and Dutch names that EndNote found difficult to extract.

The systematic search returned 11 articles in Science Direct, 25 in ProQuest/IBSS (after excluding newspaper articles), 34 in EBSCO (after keeping only academic publications) and 1 in Google Scholar for a combined return of 71 results.

Search formula

Keywords and search formula	Database	Results
noft(("transaction tax" OR "transaction taxes" OR "stamp duty" OR "registration tax" OR "registration taxes" OR "transfer tax" OR "transfer taxes") AND (housing OR "real estate tax"))	ProQuest/IBSS	25
noft(("transaction tax" OR "transaction taxes" OR "stamp duty" OR "registration tax" OR "registration taxes" OR "transfer tax" OR "transfer taxes") AND housing)	Science Direct	11
AB=("transaction tax" OR "transaction taxes" OR "stamp duty" OR "registration tax" OR "registration taxes" OR "transfer tax" OR "transfer taxes") AND housing)	EBSCO	34
AB=("transaction tax" OR "transaction taxes" OR "stamp duty" OR "registration tax" OR "registration taxes" OR "transfer tax" OR "transfer taxes") AND (housing OR "residential property") AND Source=EconLit	EBSCO	28
allintitle: housing "transaction tax" OR "transaction taxes" OR "stamp duty" OR "registration tax" OR "registration taxes" OR "transfer tax" OR "transfer taxes"	Google Scholar	1
Union of above searches	Total	71

Search results

Abelson, P. and R. Joyeux (2007). "Price and efficiency effects of taxes and subsidies for Australian housing." Economic Papers - Economic Society of Australia 26(2): 147.

Allen, F. and E. Carletti (2013). "Systemic Risk from Real Estate and Macro-prudential Regulation." International Journal of Banking, Accounting and Finance 5(1-2): 28-48.

Anonymous, (2016). "Budget focuses on health care, schools and housing market." Journal of Commerce (15): 1.

Aregger, N., M. Brown and E. Rossi (2013). Transaction Taxes, Capital Gains Taxes and House Prices, Swiss National Bank, Working Papers: 2013-02: 54 pages.

Bank of England, (1992). "The domestic economy." Quarterly Bulletin 32(4): 371.

Benjamin, J. D., N. E. Coulson and S. X. Yang (1993). "Real estate transfer taxes and property values - the Philadelphia story." Journal of real estate finance and economics 7(2): 151.

Bérard, G. and A. Trannoy (2017). "The impact of a rise in the real estate transfer taxes on the French housing market." Aix-Marseille School of Economics Working Papers 32

Berry, J. (2001). "Government Intervention and Impact on the Housing Market in Greater Dublin." Housing Studies 16(6): 755-769.

Besley, T., N. Meads and P. Surico (2014). "The incidence of transaction taxes: Evidence from a stamp duty holiday." Journal of Public Economics 119: 61-70.

Best, M. C. and H. J. Kleven (2018). "Housing Market Responses to Transaction Taxes: Evidence from Notches and Stimulus in the UK" The Review of Economic Studies 85(1): 157.

Bogataj, D., D. R. McDonnell and M. Bogataj (2016). "Management, financing and taxation of housing stock in the shrinking cities of aging societies." International Journal of Production Economics 181: 2-13.

Bradley, J. F. (1999). "Stamp Duty on Housing: Some Lessons from the Republic of Ireland." British tax review: 174-188.

Brown, J. T. (2013). "Dodging the draft (tax): How China's draft inheritance tax law turns a blind eye to the rick, a good eye to the masses, and how a reorientation can be realized." Washington University Global Studies Law Review 12(1): 161.

Burbidge, A. and I. Winter (1996). "As Safe as Houses-or a House of Cards?" Family Matters (43): 31-33.

Capéau, B., A. Decoster and F. Vermeulen (2005). "Homeownership and the life cycle: an ordered logit approach." Applied economics quarterly 51(4): 345-358.

Chao, C.-c. and E. S. Yu (2015). "Housing Markets with Foreign Buyers." Journal of Real Estate Finance and Economics 50(2): 207-218.

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6.2. Capital gains tax

The systematic search process involved searching on three different databases using a wide range of keywords. Those that yielded the most relevant results were: “capital gains tax(es)” combined with “housing.” Using “house” or “residential land” as a substitute for “housing” allowed us to capture some important articles so we expanded our search accordingly. Other keywords like “property” or “second home(s)” did not yield extra results within our scope so we excluded them in the final search. We searched in the abstract when there was one, and in the title and subject fields when none was available. Doing so was made necessary by the fact that older articles tend not to have any abstract.

We searched for evidence on ‘Build to Rent’ but did not find anything material. We also searched one of the UK’s large property managers but did not find any evidence either: although there was expert judgement, we could not qualify that as ‘evidence’ because neither the methodology nor data were disclosed. Where possible, references from the initial search pool were added to the list: for example, Holt and Shelton (1961) is a general article about the impact of CGT on investment decisions.

The systematic search returned 59 articles in ProQuest, 12 in Science Direct and 118 in EBSCO for a combined return of 163 results.

Search formula

Keywords and search formula	Database	Results
noft("capital gains" AND tax AND (house OR housing)) NOT (noft("House of" OR "White House"))	ProQuest/IBSS	59
noft("capital gains tax" AND (housing OR "residential land" OR house) AND NOT "White House")	Science Direct	12
AB=(("capital gains tax" OR "capital gains taxes") AND housing) OR TI=("capital gains tax" OR "capital gains taxes") AND SU=housing	EBSCO	118
Union of above searches	Total	163

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6.3. Quality of the private rental sector

The keywords that yielded the most relevant results were: housing AND quality AND rental AND tax. Using the keyword “rental” by itself was a good proxy for the PRS. We excluded articles containing “neighbourhood effect” or “neighbourhood quality” within their titles as the neighbourhood effect was out of the scope of this review. Since we were interested in the quality of the PRS and not the quality of a regression, the term “quality assured” was excluded. Moreover, the document type “reports” was too general and did not provide any specific evidence about the impact of taxation on the PRS so was excluded from the search. Articles related to the construction of price indices were excluded as well. An article written in Japanese with an English abstract was retained as it dealt with an infrequent event that affects housing in Japan: earthquakes.

The systematic search returned 5 articles in Science Direct, 8 in ProQuest/IBSS and 17 in EBSCO for a combined return of 30 results.

Search formula

Keywords and search formula	Database	Results
noft(housing AND quality AND tax AND rental) NOT ti("neighborhood effects" OR "neighborhood quality")	ProQuest/IBSS	8
housing quality tax rental NOT("quality assured")	Science Direct	5
AB=housing AND quality AND rental AND tax) NOT "quality-assured" SU=NOT("price indexes") TI=NOT("neighborhood effects" OR "neighborhood quality" OR "price index")	EBSCO	17
Union of above searches	Total	30

Search results

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