

**Owner Occupied Housing Taxation:**  
**A Vertical Equity Evaluation of the UK and US Tax Systems**

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**Abstract:**

Tax favouritism of homeowner occupiers continues to be discussed by academics and policymakers given its significant personal and fiscal importance. This research area has become even more topical in the last few years given the recent financial crisis. The multi-layered, comparative micro-simulation technique employed within this study provides a solid platform from which to appraise existing tax systems and proposals for future policy with regard to owner-occupied housing taxation.

This paper presents the findings of evaluations on the vertical equity of specific US and UK tax policies affecting homeowner occupiers, as well as the impact on the overall tax systems. The evaluations include comparisons with investors in alternative capital assets within the two respective countries. Vertical equity is quantified using a combination of structural and distributional measurement techniques.

## **Introduction**

Consecutive US and UK governments have promoted homeownership through fiscal policy since World War 2. The recent global financial crisis brought on by the US subprime mortgage crisis leaves little doubt of the significant impact of misdirected and unregulated policy and practice in an economic super power. While mortgage-lending issues have been and continue to be addressed in both countries following the crises, the US and UK governments' promotion of homeownership continues unabated.

The OECD condemns the fiscal favouritism of homeowner occupiers on grounds of neutrality and tax equity (OECD 2001). The asserted optimal taxation of such individuals is to recognise an annual imputed rental income and the capital gain on transfer. The US and the UK are not unusual in their departure from such optimal taxation as very few countries tax either of these elements, let alone both. However, the US is becoming more unusual with its generous provision for mortgage interest and real estate tax relief as most other OECD countries have either eliminated or significantly restricted such allowances.

This paper presents research findings on vertical tax equity evaluations of homeowner occupiers in the US and the UK. Comparisons are made with investors in alternative investments of either financial instruments or residential rental real estate in both countries to better understand the impact of the country-specific fiscal favouritisms to homeowner occupiers. The two-country comparison highlights the significant impact of specific tax subsidies on the respective overall tax systems.

## **Vertical Equity in Literature**

Equity has a long history in the law and public finance literature. The philosophical frameworks of distributive justice bear directly on the various aspects of tax equity, particularly the vertical fairness of taxation (i.e. progressivity). The widely recognised primary criteria for determining distributive justice are libertarianism<sup>1</sup> (endowment-based), utilitarianism<sup>2</sup> (welfare economics), and egalitarianism<sup>3</sup>. In

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<sup>1</sup> See Locke (1924/1690) for a discussion on "entitlement right" and Nozick (1974) for a discussion on the "principle of rectification".

<sup>2</sup> See Mill (2001/1848) for a discussion on "equal sacrifices".

<sup>3</sup> See Rawls (1971) for a discussion on the "the veil of ignorance" and the "original position" principle.

addition to the traditional philosophical platforms, feminism<sup>4</sup> provides an alternative vision of distributive fairness.

Vertical equity in taxation refers to a just or fair distribution of the tax burden. The distribution is with or without regard for the pre-tax distribution of wealth. With regard to the pre-tax situation, an equitable distribution considers correcting pre-existing inequities through the redistribution of wealth through taxation and benefit provision. When the pre-tax situation is not regarded, the tax burden is distributed equally, leaving any pre-existing inequities unchanged.

Adam Smith recognised the benefit principle and the ability-to-pay principle in his first canon<sup>5</sup> regarding tax equity (Smith, 1999/1776). The benefit approach calls for reflective taxation of persons with regard for individual benefits derived from government expenditure. This approach is often criticised for the difficulty in tracing benefits to individual recipients, and its implications that the poor derive greater benefits and thus, should have a greater tax obligation.

According to the ability-to-pay principle, taxpayers should contribute to the required revenues of governments according to their means. While the ability-to-pay principle is not without criticism, in comparison with the benefit principle it is a sounder platform on which to design or reform a tax-structure and from which to evaluate equity.

Tax equity can be evaluated from two perspectives with respect to the ability-to-pay approach: horizontal equity, requiring equal treatment of equals, and vertical equity requiring an appropriate differentiation among unequals (Musgrave 1959, p160). This paper focuses on vertical equity.

Tax systems are deemed progressive when average tax rates rise with income and regressive when average tax rates fall as income rises. If the average tax rates remain constant despite rising or falling income, then the system is deemed proportional. These basic definitions of progressivity, proportionality, and regressivity are found

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<sup>4</sup> Kornhauser (1987) considered progressive taxation from an alternative perspective, feminism, in contrast to the perspectives of the neoeconomists and neoconservatives who are grounded in entitlement theory.

<sup>5</sup> Smith's four canons of *good tax design* focused on equity, economic efficiency, simplicity and convenience (Smith, 1999/1776).

throughout the literature on vertical equity (Musgrave and Thin, 1948, Rosen, 2005, Norregaard, 1990, OECD, 1990, among others).

Progressivity within a tax structure may be achieved by three possible methods. Graduated tax rates are the most obvious method of producing a progressive tax structure. A flat tax rate with an exemption also achieves a level of progressivity; Blum and Kalven (1953), Kornhauser (1987) and Rothbard (2001) refer to this as a degressive tax. Finally, the withdrawal and/or removal of certain tax allowances (i.e. exemptions, deductions and/or credits) at higher levels of income will introduce or enhance progressivity in a tax system. This is sometimes referred to as “backdoor progression” (Byrne, 1995).

The principle of vertical equity suggests that the wealthy should pay more tax than the poor because they can afford to do so (i.e. they have a greater ability). Given the pre-tax inequality inherent in a capitalist society, increasing tax rates applied to increasing tax bases ensures a more equal distribution of after-tax income. While the basic concept is generally agreed when one accepts that redistribution is a sound goal for taxation, the rate of progressivity is a matter for debate. The moral value of greater equality is not perceived as an absolute value (Head 1993, p77). The very idea of progressive taxation has been and continues to be challenged in literature.<sup>6</sup>

Arguably, a progressive income tax structure has been established as socially acceptable and politically desirable since the inception of income taxation in the US and the UK. The degree of progressivity has varied over time with regard to the number of tax bands and the associated marginal rates, but both countries have maintained nil-rate tax bands and graduated rate structures throughout their respective income tax histories.

The aim of this study is not to contribute to the on-going debate on progressive taxation but to establish how vertically equitable or inequitable owner-occupied housing tax policies are in the UK and the US. In addressing this research objective, vertical equity must be measurable. The degree of progressivity in a given tax system is the generally accepted proxy for establishing vertical equity. Whether a more

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<sup>6</sup> The justification for progressive taxation was first examined by Blum and Kalven in their 1953 seminal work, *The Uneasy Case for Progressivity* and has been widely debated ever since.

progressive tax system is considered to be more vertically equitable is a matter of political and scholarly debate.

While comparisons of average tax rates to income are capable of classifying a tax system as progressive, proportional or regressive, these are simply qualitative characteristics and say nothing regarding the *degree of progression*. When progressivity is measured in degrees, the inequities may be quantified and cross-sectional and international comparisons may be made. Measurement techniques have varied over the decades. Kiefer (1984) provided an overview of the more common measures of progressivity (indices). He categorised them as structural (what affects their numerical value) and distributional (what they measure). This chapter applies both structural and distributive techniques to micro-simulated data in its evaluation of progressivity in US and UK tax systems.

Structural indices are point measures of progressivity based upon the tax paid at specific points of the income scale. This study employs Average Rate Progression to measure the degrees of progressivity at the incremental levels and over the established range of study. This structural index was established by Pigou (1928) and was discussed by Musgrave and Thin (1948).

#### Average Rate Progression (ARP)

As explained by Musgrave and Thin, ‘the degree of progression may be measured by the rate of change in the average rate of tax’ (Musgrave and Thin 1948, p 499):

$$ARP = \frac{\left( \frac{T_1}{Y_1} - \frac{T_0}{Y_0} \right)}{Y_1 - Y_0}$$

The above equation reflects the respective tax liabilities ( $T$ ) for the corresponding incomes ( $Y$ ) and  $Y_1$  exceeds  $Y_0$ . In other words, the numerator represents the change in the average tax rate and the denominator represents the change in income.

If the average rate progression calculation yields a positive result, zero or a negative result, the tax system is progressive, proportional or regressive, respectively. What is effectively being measured is the slope of a curve obtained by plotting on an

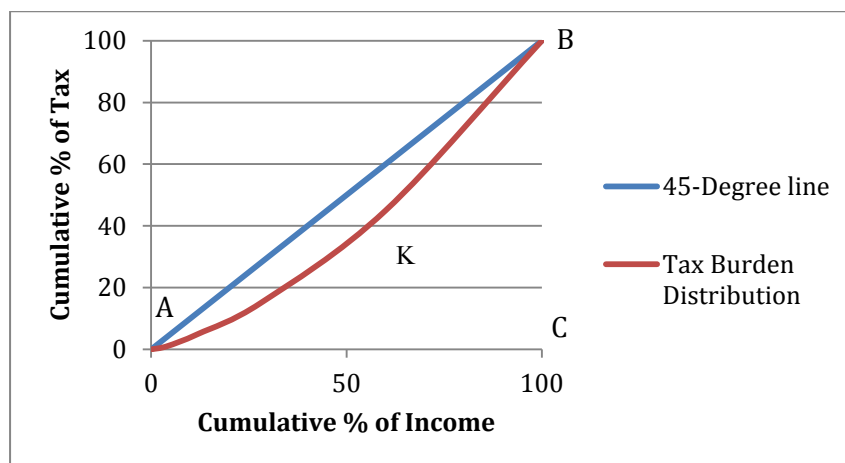
arithmetic scale the average tax rates against income (Musgrave and Thin 1948, p 499 – p 450).

Analysis involving a structural index is very detailed by nature in that it measures the degrees of progressivity at selected points on the income scale through applicable tax data. Therefore the number of indices calculated for analyses are many. By contrast, distributional measures yield one index per annum and per period of study.

### The Suits Index

Suits (1977) developed a distributional measure of tax progression which compares the concentration of the tax liability with that of pre-tax income where the cumulative tax liabilities are plotted on the vertical axis and the cumulative pre-tax incomes are plotted on the horizontal axis, yielding a single concentration index as the measure. A proportional tax is reflected in the 45-degree line (i.e. 10% of the income yields 10% of the tax burden, etc.). The progressivity index of such a tax would be nil. A progressive tax would sag below the diagonal and the corresponding index would be a positive fraction below +1, where +1 represents the extremely progressive tax falling on one taxpaying unit. A regressive tax would bow above the diagonal and the corresponding index would be a negative fraction above -1, where -1 represents the extremely regressive tax falling on one taxpaying unit. A graphical illustration of a Suits Curve is contained in Figure 1.

**Figure 1** Suits curve illustration



If the Suits curve is derived from five discrete values, the formula for the corresponding progressivity index according to Suits (1977) is as follows:

$$S_x = 1 - \left[ \sum_{i=1}^5 \frac{1}{2} [T_x(y_i) + T_x(y_{i-1})](y_i - y_{i-1}) \right] / K$$

The above formula first multiplies the accumulated percentage of tax burden (T) by the respective incremental differences in the accumulated percentage of income (Y). Then the sum of one-half these multiples is divided by the area of the triangle ABC (denoted by K) and then subtracted from one to yield the Suits (S) index.

The employment of the Suits methodology not only establishes the degrees of progressivity from the distributional perspective, more importantly it provides a measure of the progressivity of the overall tax system through the weighted average of the individual indices of which the system is comprised. This is a unique feature of this particular progressivity measure and is therefore employed in this study.

The superiority of one measure of progression has not emerged from the literature but Norregaard (1990) suggested the following with respect to the relative question:

*If the emphasis is on the impact of taxes on the income distribution (i.e., post-tax compared to pre-tax distributions), Musgrave-type measures are preferable. If, however, progressivity is seen more of a question of how the percentage distribution of taxes across deciles compares to the percentage distribution of (pre-tax) income (disregarding the size of the average tax rate), Kakwani and Suits-types of measures should be used (Norregaard 1990, p87).*

Different measures of progressivity may yield different results; therefore, it is advisable to utilise more than one measure. The structural indices are preferred when investigating the degree of progressivity on a given tax structure. The distribution indices are preferred when investigating the extent to which income is redistributed as a result of the tax system. This paper considers both with regard to measuring the degrees of progressivity of the respective US and UK tax systems for respective investors in owner-occupied housing, financial instruments or residential rental real estate.



## Methodology

In order to produce robust evaluations of tax equity, micro-simulations using consistent parameters and a representative agent technique<sup>7</sup> have been employed. The micro-simulations are spread sheet constructions underpinned by the respective tax systems of the two countries studied. Within each country-specific simulation fifteen hypothetical families are established, varying in two respects. First, the families reflect different levels of income earnings in that there are five multiples of the median incomes relative to the two countries in 1990. Second, the families vary in terms of their investment choice; five families of differing levels of income are invested in owner-occupied housing, five in residential rental real estate (e.g. tenant / landlords) and five in alternative (financial) investments (e.g. alternative investors). The specific taxes and associated subsidies considered in this research are the acquisition taxes, property taxes, the elements affecting income taxes and capital gains taxes. The tax equity of each of these four specific elements of the overall tax systems is evaluated separately and collectively. The analyses are first conducted within each country's study, and then comparatively on a cross-country basis. The time frames in which the studies are set are twenty-year periods, corresponding with each country's respective tax years.

Over the twenty-year period of study, specific policy modifications and reforms occurred in both countries. These include the introduction of the Stamp Duty Land Tax and the Council Tax, the phase out and final abolition of Mortgage Interest Relief at Source (MIRAS) and several changes to the capital gains tax system in the UK. In the US, the capital gains taxation of the family home was significantly reformed. Modifications to the standard deduction, the alternative minimum tax and capital gains tax calculations indirectly but significantly impact the homeowners' tax benefits. Phase-out computational modifications of itemized deductions have a more direct effect.

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<sup>7</sup> This is a technique used in simulations where a common reference point is established (i.e. an individual with median income) and additional points of reference are established in multiples. In this study, the median income families in the two respective countries in 1990 are the starting points for the simulations, and then multiples of ½, 2, 4 and 5 are derived.

The user cost framework<sup>8</sup> is well recognised in the literature regarding imputed rent taxation. It is with reference to this ideology that the incomes of the tenant / landlord families are established in the micro-simulations.

The Average Rate Progression method of measuring progressivity is applied to the annual simulated data and the progressiveness for the transaction tax systems, the property tax systems and the income tax systems are analysed. The systems are measured between each successive multiple of income to give a comprehensive rate of progression and identify areas of greater, lesser or non-progression. In addition to determining the degree of progressivity at close intervals, the overall degree of progression is determined using the extreme data in each simulation. A comprehensive analysis is made to establish the winners and losers with regard to the specific and overall tax policies studied and a more general analysis is made for comparability within and across the subject countries.

In addition to the structural analysis, this research offers a distributional analysis with the application of the Suits methodology. The use of the Suits indices serves three purposes. First, it clearly depicts the temporal changes in progression, highlighting the effects of recent tax reforms. Second, the summation of simulation results into single measures facilitates the international comparison. Finally, this particular measure of progressivity is useful in that it is capable of yielding an overall estimation of the progressivity of an entire tax system through the weighted average of the specific indices which the system comprises, further facilitating cross-country analysis.

The progressivity of the tax systems affected by homeownership are compared and contrasted to the progressivity of the respective tax systems as experienced by the simulated families with alternative financial investments. By so doing, the effect on progressivity solely attributed to a country's owner-occupied housing tax policies can be quantified. The analysis is extended to a progressivity comparison between homeowner occupiers and investors in residential rental real estate (i.e. tenant / landlords) in order to highlight fully the effect occupied housing subsidies have on vertical equity.

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<sup>8</sup> This refers to the shifting of costs incurred by the landlord to the tenant through the rental charge.

## Results

### *Acquisition Taxation*

Progressivity is inherent in the UK acquisition tax system for property investment given the varying rates of taxation with respect to varying levels of investment. The introduction and subsequent modifications of higher tax thresholds improves the vertical equity given the ability-to-pay premise on which it is based. The Suits indices begin at 0.0040 in 1990/91 and conclude at 0.2193 in 2005/06, clearly indicating an improvement in progressivity as a result of the reform.

The US acquisition tax system for property transactions varies among the states. The tendency is for proportional taxation, which is assumed within the simulation. The acquisition taxes in the UK are more vertically equitable than the US in that there is a level of non-taxation in the former and often not the latter. The rate of taxation, however, is greater in the UK than most US locales.

### *Property Taxation*

The UK community charge was, and the council tax is, a regressive<sup>9</sup> form of property taxation. This is apparent in the rate structure and evident in the indices calculated within the simulations. The Suits indices calculated on the simulated data relevant to the years in which the community charge applies are -0.3840, whereas the results from the years in which the council tax applies are -0.1892. The significant fall in the negative results<sup>10</sup> affirm the council tax as a far less regressive property tax system in comparison with its predecessor, the community charge. Therefore, the vertical equity of the UK property tax system improves in 1993 with the adoption of the council tax. Because the community charge and the superseding council tax are assessed on the occupant of the property, the same liabilities are incurred whether the occupant is the homeowner or simply a tenant. Therefore, there is no variation in the vertical equity (or inequity) of the UK property tax system between homeowner occupiers and tenants of residential real estate.

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<sup>9</sup> Certain concessions apply (i.e. full-time students, elderly, low income families) which positively affect the vertical distribution of the tax.

<sup>10</sup> The Suits indices range from -1 to +1, and the negative decimals are reflective of a regressive tax systems whereas positive decimals are indicative of progressive tax systems.

The US property tax varies among municipalities and locales in terms of assessment, rate structure, concessions, and etc. A particular state's policy is assumed within the simulation, with rates in line with the national averages as per the two relevant census' and administration policies that are deemed to be a reasonable representation. The rates applied are proportional with the exception of a slight concession for the lowest tiered homeowner in the first six years of the study. In conclusion, property taxation tends to be proportional with very little if any progressivity built in at the bottom of the income scale. Whether the analysis recognises the economical incidence of the property tax or simply the formal (legal) incidence, determines whether or not the tenant of a rental property realises the US property tax. As the simulations are set within the user-cost framework, the economic incidence is applicable. Therefore, the alternative investors and the tenant / landlords incur the same property tax obligations, which are proportional without concessions. Therefore, the US property tax system is slightly more vertically equitable for homeowner occupiers and tenants of residential real estate.

The UK property tax system is unquestionably regressive whereas the US locales tend towards proportionality with the possibility of mild progression at the lowest levels of income and investment. The average property tax rates for the two countries in the twenty-year period of study are 1.58% (UK) and 2.85% (US), based on the cumulative property tax obligations to the cumulative comprehensive income<sup>11</sup> as simulated.

### *Income Taxation*

The UK income tax system is progressive with at least two rates of taxation and a personal allowance, which introduces a nil-rate band. Similarly, the US income tax system is progressive with at least three rates of taxation and standard allowances and personal exemptions introducing a nil-rate band. The focus of this study is on particular elements within the respective income tax systems that are related to housing (i.e. mortgage interest relief, real estate tax deductions in the US and rental property taxation).

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<sup>11</sup> Comprehensive income in this study is the cumulative, twenty years' income plus the capital gain realised on the final disposal of the capital investment at the end of the study period (i.e. home, financial instruments or residential rental property).

Tables 1 and 2 set out the ARP indices and Suits indices for the homeowner occupiers against the other investors in both countries. The variations in these indices represent the degrees of progression (or regression) of the respective benefits. Subsidy (1) in Table 1 refers to the benefit of mortgage interest relief (and real estate tax deduction in the US). Subsidy (2) in Table 2 refers to the omission the imputed rental income as well as the mortgage interest relief (and real estate tax deduction). The negative differences reflect how much less progressive the other investors' tax systems are in comparison with homeowner occupiers. Positive differences are how much more progressive the systems are in comparison.

**Table 1 Differences in ARP and S indices between homeowner occupiers and alternative investors in both countries: Subsidy (1)**

	United Kingdom		United States	
	ARP Index	Suits Index	ARP Index	Suits Index
Homeowner	1.65739E-07	0.1270	5.15837E-08	0.1512
Alt Investor	<u>1.58359E-07</u>	<u>0.1186</u>	<u>6.25914E-08</u>	<u>0.1626</u>
Subsidy Index (1)	<u>-7.38056E-09</u>	<u>-0.0084</u>	<u>1.10076E-08</u>	<u>0.0114</u>

**Table 2 Differences in ARP and S indices between homeowner occupiers and tenant / landlords in both countries: Subsidy (2)**

	United Kingdom		United States	
	ARP Index	Suits Index	ARP Index	Suits Index
Homeowner	1.65739E-07	0.1270	5.15837E-08	0.1512
Tenant / Landlord	<u>1.47499E-07</u>	<u>0.1169</u>	<u>6.51215E-08</u>	<u>0.1687</u>
Subsidy Index (2)	<u>-1.82408E-08</u>	<u>-0.0101</u>	<u>1.35377E-08</u>	<u>0.0175</u>

The UK allowed relief for mortgage interest through the Mortgage Interest Relief At Source (MIRAS) scheme until 1999/00. The progressivity of the income tax system

with respect to the homeowner occupiers benefiting from MIRAS decreases during the period in which MIRAS is being phased out and falls in line with the alternative investors for the remainder of the study. Consequently, the abolition of MIRAS results in lower progressivity for the homeowner occupiers and the vertical equity of the UK income tax system is inadvertently hindered with this reform.

There has been an erosion of the benefits of the US mortgage interest and real estate tax deductions over the twenty-year period of the study due to significant increases in the standard deductions. This coupled with significant changes to tax bands and income tax rates at around the same time affected the general progressivity of the income system for the better. However, the effect of restricting mortgage interest and real estate tax deductions to the higher levels of income result in a less progressive tax system when compared with the alternative investors and the tenant/landlords in the US simulations.

Both countries' income tax systems are progressive but the impacts of the owner occupied housing subsidies have very different effects. The UK homeowner occupiers experience more progression with regard to income taxation as a result of the two notable subsidies (i.e. the allowance of mortgage interest relief in the first half of the study and the omission of an imputed rental income from income taxation). The US homeowners experience less progression. The average tax rates based on the simulated cumulative income tax obligations in relation to cumulative income in the UK and the US are 24.8% and 14.4% respectively.

### *Capital Gains Taxation*

The UK capital gains tax system fully exempts the gain on the disposal of the principal residence. For all other personal capital transactions, the system is progressive given the two rates of tax (i.e. 0% and 18%) in 2009/10.

The progressivity of the UK capital gains tax system has been hindered with the introduction of a flat tax rate in April 2008. Prior to that date there existed four rates of taxation. The system is still progressive in the sense that there is a nil rate band resulting from the annual exemption, but less progressive than it was prior to the introduction of the flat rate. With respect to the tenant / landlords in the study, there is an improvement in that the higher tiered study families go from no taxation to

progressive taxation with the abolition of the indexation allowance. Further, a slight drop in progressivity is noted with the abolition of taper relief<sup>12</sup> due to the fact that another study family is then exposed to CGT. In conclusion, the removal of inflationary relief exposing higher levels of gains to taxation improves the vertical equity of the system, while the introduction of a flat tax rate is a hindrance.

The US capital gains tax system is progressive given two levels of taxation (i.e. 0% and 15%). In addition to the pure capital tax, an ordinary tax on the accumulated depreciation of a capital asset (i.e. rental real estate) is levied on disposition. The tax on depreciation recapture (relevant for the tenant / landlords) is progressive up to a maximum rate of 25%. The effect of the change to capital gains taxation on the family home is not discernible in this study because the postponement of the tax in the early years (prior to the reform) means no immediate taxation and the exemption allowance available in the later years of study means no taxation. The modification in capital tax rates for other investors (i.e. alternative investors and tenant /landlords) significantly improves the progressivity of the tax system.

Both countries effectively exempt homeowner occupiers from capital gains taxation (the UK exempts entirely and the US study families do not breach the taxable threshold and are effectively exempt). Therefore vertical equity cannot be considered with regard to capital gains taxation of homeowner occupiers, as it is not a factor in the overall tax scheme for families in either country.

### *Overall Taxation*

The Suits indices measuring the degree of progressivity of overall tax systems for the UK homeowner occupiers, the tenant / landlords and alternative investors are 0.1071, 0.09976 and 0.09966, respectively. The homeowner occupiers bear the most progression in the overall tax system of the three investors.

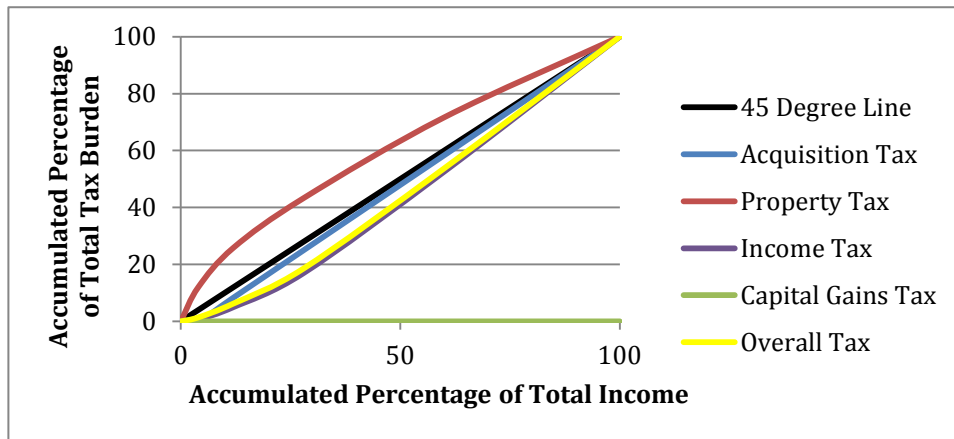
The combined overall progressivity measure is a culmination (weighted average) of the specific progressivity measures as determined within the simulation. The progressivity of the UK specific taxes together with the progressivity of the overall

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<sup>12</sup> Taper relief was a method of eliminating the inflationary gain in the capital gains tax computation. Such relief was abolished with the introduction of the flat tax rate in April 2008.

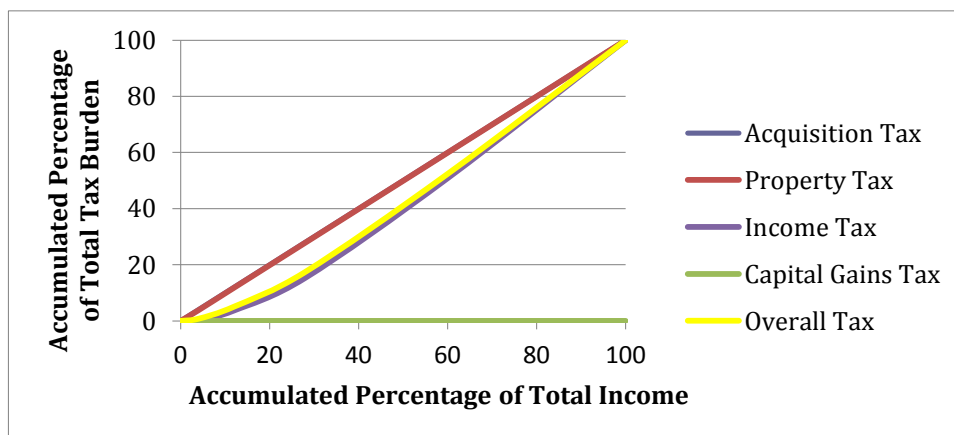
tax systems as determined by the four specific taxes is reflected in the Suits curves of Figure 2.

**Figure 2 Suits curves depicting the progression of the UK specific and overall taxes for homeowner occupiers**



The Suits curves reflecting the progressivity of the US specific and overall tax systems of the homeowner occupiers are depicted in Figure 3. The Suits curve reflecting the progressivity of the acquisition taxes cannot be distinguish from the Suits curve of the property taxes (red) as the acquisition taxes are completely proportional and the property taxes are nearly so. The yellow Suits curve resting above the income tax (purple) Suits curve represents of the progressivity of the overall US tax system, which is the weighted average of the four taxes the system comprises.

**Figure 3 Suits curves depicting the progression of the US taxes for homeowner occupiers**



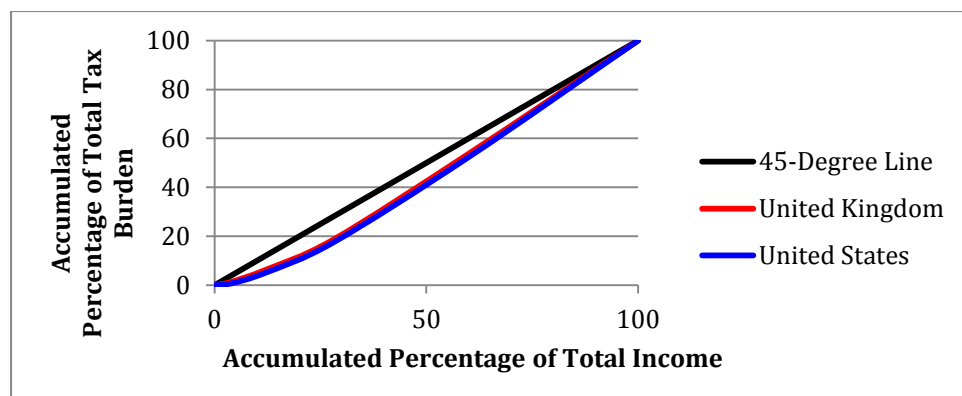


The Suits indices measuring the degree of progressivity of overall tax systems for the US homeowner occupiers, tenant / landlords and alternative investors are 0.1260, 0.1326 and 0.1378, respectively. The homeowner occupiers bear the least progression in the overall tax system of the three investors.

When comparing the Suits indices measuring the progressivity of the countries' tax systems taken as a whole, besides the fact that the homeowner occupiers have opposing rankings in both countries, the variations between the three investors are notably greater in the US. With regard to the homeowner occupiers and alternative investors, this variation is partly due to the significant effect the US mortgage interest relief plays on progression in comparison with MIRAS and the fact that the MIRAS effect is limited to the first half of the study. The differences in rental real estate taxation in the two countries account for the variations between alternative investors and tenant / landlords.

The overall average tax rates calculated on the cumulative overall tax obligations to cumulative comprehensive income are 26.5% and 17.3% in the UK and the US, respectively. One final point on the comparisons of the two simulations is that while the UK imposes a far greater average overall percentage (mainly through the income tax system) on its taxpayers, the US tax system is notably more progressive. The degrees of overall tax progression are measured to be 0.1071 and 0.1260 for the homeowner occupiers of the UK and the US, respectively. The variation (i.e. a difference of 0.0189) is slight but discernible when the respective Suits curves are plotted together as in Figure 4.

**Figure 4 Suits curves depicting the progression of the UK and US overall tax systems for homeowner occupiers**



The US / UK variations in progressivity for the other investors is even greater. The UK tenant / landlords measure at 0.09976 whereas the US tenant / landlords measure at 0.1326, a difference of 0.03284. The UK alternative investors' degree of progressivity measures at 0.09966 whereas the US alternative investors' progressivity measures at 0.1389, a difference of 0.03924.

## **Conclusion**

This study focuses on the vertical equity aspect of the specific tax policies that affect homeowner occupiers as well as the overall tax impact in comparison with investors in alternative capital assets (i.e. residential rental real estate and financial securities). The methodology used within the study is a comparative micro-simulation using a combination of structural and distributive measures of progressivity. The use of the Suits method of analysis enables the measurement of the progressivity of overall tax systems, comprised of the specific tax systems studied.

Comparing the measures of progressivity determined for the homeowner occupiers with the measures determined for the other investors within the same country's tax system, the impact of the tax aspects specific to homeownership on progression become apparent. The general levels of progressivity and the respective influences of favourable tax policies are then compared with those of the other country to further inform.

Both countries' specific tax systems have varying inherent vertical inequities resulting from the differences in rate structures, allowances and exemptions. The UK homeowner occupiers experienced more progressivity in the acquisition tax system when compared with the US investors given the provision for a nil-rate band in the UK national tax system and no such provision in most US state systems. US homeowner occupiers experience more progressivity in a typical property tax system, which is either entirely proportional or mildly progressive given the possible provision of a low level concession. The two UK property tax systems considered in this study are regressive and therefore less progressive than even a proportional US property tax system. The US income tax system is more progressive than the UK income tax system, regardless of investment choice. In fact, the least progressively taxed US investors experience a greater degree of progressivity than the most

progressively taxed UK investors. The homeowner occupiers are taxed more progressively in the UK as compared with the other UK investors, whereas the homeowner occupiers in the US are taxed less progressively than the other US investors. This leads one to conclude that the tax provisions specific to homeowner occupiers enhanced the progressivity of the UK income tax system and hinder the progressivity of the US income tax system. Finally, the US capital gains tax system with regard to the sale of the principal residence by the homeowner occupier is progressive whereas the UK tax system specifically excludes such property from capital gains taxation. While the US study families within this study did not breach the taxing threshold, the system is nonetheless progressive.

Overall, the US investors experience a more progressive tax system when compared directly with the UK investors. In fact the US homeowner occupiers, while experiencing the least progression from the US tax system, are taxed more progressively than the UK homeowner occupiers who are experiencing the most progression in the UK tax system relative to the other respective investors studied. The ranking of progression deduced in this study show that the elements considered within the overall taxation of homeowner occupiers enhance the progressive taxation of UK investors and hinder the progressive taxation of the US investors. It is evident that the different provision for mortgage interest relief is a significant contributing factor.

### **Discussion on the US mortgage interest deduction**

This research identifies and quantifies the significant vertical inequities regarding the US mortgage interest allowance. Only those taxpayers able to itemize their deductions benefit from the mortgage interest and real estate tax reliefs. Elderly homeowners with little or no mortgage debt and low to middle income taxpayers with relatively modest debt may well not exceed the statutory standard deduction, and therefore will not benefit from these reliefs in the US tax code.

Academics have criticised the mortgage interest deduction for decades based on efficiency and equity grounds<sup>13</sup>. It is not an appropriate tool to encourage homeownership. The UK, Canada and Australia have similar homeownership

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<sup>13</sup> See Litzenberger and Sosin, 1978, Green and Vandell, 1999, Bourassa and Ming Yin, 2008, Toder *et al.*, 2010, Hilber and Turner, 2010 and Pozen, 2011.

percentages without the allowance. Further evidence suggests that while the benefits from mortgage and real estate tax relief have significantly eroded over the past two decades, homeownership in the US has steadily increased. However, this research suggests that the benefits are enjoyed only by a minority of homeowners at the upper end of the income scale. Quite simply, higher income households have a greater probability of itemizing their deductions. This may be for no other reason than the fact that they tend to have greater monetary investments in the home with correspondingly larger mortgage debt on which the interest is calculated. Further, as the deduction is allowed at the marginal rate of tax, which is greater at higher levels of income in a progressive tax system, it is worth more.

While the concept of vertical equity remains subject to social and political debate, it would be reasonable to postulate that larger housing subsidies ought to be targeted at lower income groups, particularly if the goal is to encourage homeownership at the margin. The failure of the current US income tax system in this regard ignores the basic principle of vertical equity as larger benefits accrue to those with greater wealth. The current mortgage interest and real estate tax deductions significantly reduce the progressivity of the US income tax system because of their inequitable distribution.

A proposal for mortgage interest credit as an alternative to the mortgage interest deduction has emerged in the literature (Litzenberger and Sosin, 1978, Green and Vandell, 1999, Bourassa and Ming Yin, 2008, Toder *et al.*, 2010, Hilber and Turner, 2010 and Pozen, 2011). Tax credits are proportional and thereby more equitable than tax deductions, which tend to be regressive. If the goal is to provide assistance to all families financing their home purchase with debt, a non-refundable credit would ensure that lower and middle-income taxpayers actually receive the intended tax benefit.

President Obama has made several attempts at reforming the current mortgage interest deduction. In the Final Report from the National Commission of Fiscal Responsibility and Reform (December 2010), it was proposed that the deduction be replaced with a 12% tax credit calculated on no more than \$500,000 in mortgage indebtedness, eliminating the provision for second residences and home equity loans. The report failed by a few votes two days later. In the 2012 Budget, the President has called for a 28% cap on the tax rate applicable to itemized deductions. This would

affect taxpayers with \$250,000 of taxable income and greater. While these measures seem reasonable to the academic considering tax equity, representatives from the National Association of Realtors and the National Association of Home Builders are very vocal in their opposition. These are particularly influential lobbyists, having spent a combined \$65.8 million on Capitol Hill between 1989 and 2012 according to the Center for Responsive Politics (2012). Tax reform impacting housing has been and will continue to be a politically sensitive matter in the US.

This research establishes the effect that removing the mortgage interest deduction would have on the vertical equity of the existing US income tax system. More importantly, this research establishes that the majority of US homeowners would not mourn the loss of this very expensive tax subsidy, as the majority of taxpayers do not benefit from it. However, the minority of taxpayers who would be affected by the removal of this deduction are the wealthy and often more influential US taxpayers.

### **Future research**

The multi-layered, comparative micro-simulation methodology employed in this research has provided a sound platform from which to consider this and other policy issues and reform implications regarding the tax treatment of homeowner occupiers. The methodology in general and the simulation models in particular are adaptable to further tax equity considerations in either or both countries. Working models have been established in this project from which future research can accurately identify and quantify vertical inequities. Current works in progress focus on the UK transaction taxes, and the US property tax systems.

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