



# ***Analysis of Property Tax Options***

***A report to the  
Interdepartmental Expert Group on Property Tax***

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The analysis and views in this report are the responsibility of the authors, and not of the Economic and Social Research Institute or any other body.

# Section 1

## Introduction

### ***1.1 Context of the Study***

The design of a property tax has important implications for how the burden of the tax would be distributed across households at different income levels. One frequent objection to property taxes is that they do not take account of ability to pay. This depends on the extent to which those with more valuable properties tend to have higher incomes; and on the availability of income-related reliefs or options to defer tax payments for those who have high property values but low incomes. In this report, we explore the impact of alternative options regarding the design of an annual tax on residential property. These include consideration of alternative structures for low-income reliefs, giving full or partial waivers for the tax to those on low incomes. The analysis in this report should therefore be seen as an exploration rather than a recommendation. The evidence provided by this study can be used by its readers to inform their judgements in arriving at a design suitable for implementation.

The background to the current study may be summarised briefly. The introduction of a property tax was included in the initial Memorandum of Understanding between the Irish government and the IMF/EU/ECB Troika and has featured in all subsequent reviews. The introduction of a flat-rate Household Charge in Budget 2012 was flagged as a “first step towards a value-based property tax”<sup>1</sup> in later years. The Interdepartmental Expert Group was established in January 2012, with an overall remit as follows:

To consider the design of a property tax to be approved by Government to replace the Household Charge and that is equitable and is informed by previous work and international experience

The detailed terms of reference for the Group are set out at Appendix 1. They include

- the establishment of a stable medium- to long-term funding base for local authorities,

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<sup>1</sup> Attachment to Letter of Intent on behalf the Irish government, included in IMF (2011).

- ensuring the maximum degree of fairness between and across both urban and rural areas
- efficient and effective cost collection, including the facilitation of easy and/or phased payments by households
- ease of determination of the liability (e.g. on a self-assessment basis) coupled with a robust audit function

## **1.2 Outline of the study**

The specification of the analysis required for this report is set out at Appendix 2. In short, this study was charged with analysing a residential property tax which would yield specified annual revenue yields. The tax would

- apply to all residential property owners
- exclude those living in properties owned by local authorities, the HSE, voluntary or cooperative housing bodies or charities; and also excludes those living in unfinished housing estates or in dwellings subject to commercial rates
- make provision for full or marginal waivers in respect of low incomes, with three income thresholds being defined

In terms of the valuation base, the starting point for the analysis is to calculate the tax as a percentage of the market value of the property. Other measures which could act as possible proxies for market value were also to be explored (including floor area and dwelling type). The possible use of site value as a basis for the tax was also to be considered. The issue of using “exact” values as against banded property values was also to be examined.

The report is structured as follows. Section 2 sets out the key data used in this report – the CSO’s Survey on Income and Living Conditions, which contains detailed information on incomes as well as information on housing and house values. The careful calibration of the SILC 2008 data to reflect current incomes and housing values is documented. This section also sets out how SWITCH, the ESRI tax benefit model, has been developed to address detailed questions regarding the design and impact of a property tax. source used in this report, the CSO’s Survey on Income and Living Conditions 2008.

Section 3 focuses on establishing the tax rates required to generate alternative target revenues for a property tax. Factors influencing these required tax rates include

both the evolution of house prices, and the extent of reliefs provided to those on low income. Section 4 provides information on how the burden of the property tax is distributed, and how this varies depending on the extent of low income reliefs. As well as the distribution across households, we consider the distribution of property tax liabilities across broad spatial regions – Dublin, other urban and rural. The potential impact of variation in tax rates across this typology is also examined.

The potential for a “ banded” market value system to proxy the exact system used by most countries is explored in Section 5. In Section 6 we explore the scope for information on housing characteristics (such as location, dwelling type and number of rooms) to substitute for direct information on property values in arriving at property tax liabilities. We compare a property tax scheme with tax liabilities assigned on the basis of such information with schemes based on market value and on banded market value.

## Section 2

### Data and Analytic Framework

#### **2.1 Introduction**

A key issue in the design of a property tax is how it is to be linked to ability to pay. A data source which combines information on incomes and on housing values is essential for an exploration of how property tax liabilities can be linked to ability to pay. The CSO's Survey of Income and Living Conditions is a vital resource in this regard. Section 2.2 looks first at how SILC income and other data has been used to construct the SWITCH model, for use in analysing tax and welfare policy changes. Section 2.3 sets out the data on housing values in SILC, and how it has been used to construct a base for the analysis of a property tax. Section 2.4 considers how this newly constructed database relates to other estimates of the aggregate value of the housing stock.

#### **2.2 Survey on Income and Living Conditions, 2008**

The Survey on Income and Living Conditions (SILC) is the data source used to monitor developments in relation to poverty and deprivation in Ireland and in most EU countries: accurate measurement of incomes is an essential ingredient in this process. It is coordinated by EUROSTAT, and in Ireland the survey is undertaken and results published by the Central Statistics Office (CSO).

##### *Information gathered in SILC*

SILC also provides the database used by *SWITCH*, the ESRI tax-benefit model, to analyse the impact of past and prospective tax and welfare changes on a nationally representative sample of households. Simulating the welfare entitlements and income tax liabilities of a given individual or family requires quite detailed information on a wide range of variables, including

- ages of family members
- marital status
- family and household composition
- labour force status of the individual



- detailed information on the components of income received by the individual and his or her spouse/partner
- information on mortgage interest payments and other housing costs

*SWITCH* uses a total of 5,247 households from the 2008 SILC, containing more than 12,500 individuals.

### *Constructing a Model Database from SILC*

Most tax and welfare policies operate do not operate at the level of the household, though household income and household welfare are of key concern to policy. Instead, tax and welfare policies tend to operate at either individual level (e.g., contributions to social insurance, and some social insurance benefits) or at a family unit level. Detailed information on family and household composition is needed to ensure that it is possible to group individuals into family units, defined as an individual, together with his or her spouse, and dependent children. While much of the analysis undertaken here is at household level, the rules concerning taxation and welfare also take account of the individual and family unit levels as required.

The CSO's SILC forms part of a set of harmonized surveys used by Eurostat to analyse issues relating to poverty, social inclusion and other issues. The income concept adopted at European level is measured in annual terms. e.g., total employee and self employed income received during the last year etc. As a result, annual incomes are the core concern of the Irish implementation of SILC. While there are good reasons to be interested in this measure of income, it is not a suitable measure for the purpose of *simulating* welfare entitlement. In order to be able to analyse policy changes, it is essential to be able to simulate welfare entitlements both under the current system and under the proposed reforms. Welfare entitlements depend in the main on *current* income and labour market status e.g., for a person who becomes unemployed, it is his or her lack of current income which is relevant in a means test for Jobseeker's Allowance - his or her income in the previous employment is not taken into account. In the transition from the use of the Living in Ireland surveys to SILC for purposes of monitoring poverty in Ireland, CSO included a number of questions designed to ensure that the Irish version of SILC would capture key elements of the current income measure as well as annual income.

While tax and welfare policies tend to operate, in the main, at either individual or family unit level, policy also has a keen interest in the outcomes at household level. For example, analysis of those falling below relative income poverty lines or “at risk of poverty” is based on income per adult equivalent at household level, but with each individual (adult or child) counting separately. This is the procedure most often adopted in, for example, the EU Joint Social Inclusion Report and the monitoring poverty reports produced by the ESRI for the DSFA. Similarly the national measure of “consistent poverty” is one which is defined at household level. While our main focus is on results at household level, it should be noted that the application of the income waiver provisions is done at tax unit level (i.e., the narrow family unit, including dependant children but excluding adult children).

### *Simulation approach*

For each tax unit and individual, the SWITCH model simulates income tax, PRSI and USC liabilities and social welfare entitlements. For social insurance (contributory) benefits, we model the amount of the payment, which depends on family circumstances including the earnings of a spouse. For social assistance (non-contributory) benefits, the model uses information from the survey to establish whether the individual falls into a category covered by a particular scheme; and then whether the individual is entitled to any payment, based on the means test applicable to that scheme or broad group of schemes. Similarly, information gathered in the survey is used to estimate the income tax liabilities and PRSI contributions for each individual and/or tax unit.

### *Calibration and Validation*

The CSO weighting procedure<sup>2</sup> used to create household cross-sectional weights begins with household design weights, which are in inverse proportion to the probability of selection. A further adjustment is made to take account of non-response among longitudinal households, but no such adjustment is made for cross-sectional or “wave 1” households, as substitutions were made for non-responding households. Benchmark information or “control totals” are then used to estimate weights which gross up the data

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<sup>2</sup> The description given here is a summary of the information in Appendix 2, Background Notes, of CSO (2009), *Survey on Income and Living Conditions (SILC)*.

to population estimates. This approach is a well known one internationally, and is part of EUROSTAT's specification for SILC. Broadly speaking, the weighting estimates are derived finding the smallest adjustment to the weights which ensures that the weighted estimates reproduce the control totals or "benchmarks".

The control totals or benchmarks used by CSO are:

- population estimates by sex and age group (0-14, 15-34, 35-64, 65 and over). These are based on population projections, which draw on Census data.
- Household population estimates at regional level using the eight NUTS3 regions. These are generated from the Quarterly National Household Survey (QNHS)
- Household composition controls (6 categories, depending on numbers of adults and numbers of children) which are also drawn from the QNHS.

These controls help to ensure that SILC is broadly representative of the Irish household population in terms of key demographics (age group, sex, household composition and region). There is, however, no guarantee that this set of controls will ensure that the survey data represent the social welfare client population and/or the income tax base. These are key requirements for a tax-benefit model: the value added by the model will be greatly enhanced if the input database provides a good representation of the welfare client population and the income tax base.

Callan, Keane, Walsh and Lane (2012) find that the weights used by CSO lead to a very good representation of the social welfare population, but substantially underestimate the income tax base. However, SILC underestimates the numbers of tax units with incomes above €60,000 per annum and more especially the numbers with incomes above €150,000 per annum. Underrepresentation of higher incomes in surveys is not an uncommon finding in the international literature. There have been similar problems in surveys in other countries, and in previous surveys of income in Ireland – including the predecessors of the SILC, the ESRI's Living in Ireland Surveys (1994-2001) and the Survey of Income Distribution, Poverty and Usage of State Services (1987). The most important factor contributing to this phenomenon is not, as is sometimes thought, the

underreporting of incomes.<sup>3</sup> Underrepresentation of higher incomes in the survey tends instead to come mainly from lower response rates from those with higher incomes – which may be linked, among other things, to a higher value placed on time.

Given that this is so, a strategy which can be used to correct for differential response rates is to calibrate the weights using external information, such as that from the Revenue statistics. Essentially the procedure used is the same as that employed by CSO in constructing the benchmark weights. The difference is that some additional control totals are used, chief among these being control totals or benchmarks relating to the distribution of income taxpayers by income band.<sup>4</sup> Similar approaches have been employed for many years in UK tax-benefit models (Atkinson et al., 1988) and in Germany (Merz). The CSO benchmark weights are treated as the initial weights in our procedure, and new weights are estimated using the CALMAR software<sup>5</sup>, which gross up the population both to the new control totals, and to the controls applied by CSO. While these weights, by design, differ as little as possible from the input weights, the differences are substantial.

Given that our procedure involves re-applying the control totals from the CSO benchmarks, results on these domains tend to be similar. However there are substantial differences in terms of the implications of the alternative weighting choices for the analysis of tax policy. It is clear that when the CSO's benchmark weights are used, the costs of tax policy changes are substantially underestimated – “coverage” of the cost ranging from about 60 per cent (for a top rate tax cut) to 80 per cent (for a change in the personal tax credit). Using the adjusted weights, on the other hand, the costs are well represented, with the “coverage ratio” varying between 93 and 112 per cent.

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<sup>3</sup> This tends to be more of a problem where a single income question or a small number of questions are used. SILC looks for a great deal of detail on income components – thereby prompting respondents to recall items that might be forgotten if asked a single question

<sup>4</sup> There is also one additional demographic control, giving further detail on the numbers above and below 18. Without this it is possible that the numbers in the key age group for labour market participation may not be fully captured.

<sup>5</sup> CALMAR was developed by INSEE and is widely used by national statistical agencies in Europe and by EUROSTAT. The weights are CALibrated to recapture MARGinal totals.

### **2.3 SILC and House Prices**

SILC requires each household to nominate a ‘head of household’ or representative to answer a household questionnaire. This household representative then answers a variety of questions relevant at household level such as housing tenure, mortgage amount or rent paid. Home owners, along with renters, are asked to provide an estimate of the value of their property. Close to 90 per cent of owners provide an estimated house value while 63 per cent of renters do. Respondents are also asked if they have the dwelling and/or contents insured. We examined the ratio of actual to insured value for those households who provided both house and insured house value. For households missing the value of the dwelling but who did provide the insured house and/or the insured house and contents value we applied the average of this ratio to the insured value to estimate a house value. This was done for around 6 per cent of the sample. A small handful of cases (16 out of a total of 5,247 households) provide a house value below 1,000. In these cases we examined characteristics of the property and assumed the respondent’s answer had been given or coded in thousands. We therefore multiplied the house value by 1,000. After these corrections missing house values remained for around 12 per cent of the sample. We used a technique known as hedonic regression (discussed further in Section 6) to estimate a house value for these remaining properties. The technique expresses the value of a property based on a variety of characteristics, specifically:

- Dwelling type (detached, semi-detached, terraced, apartment etc.)
- Number of rooms
- Location (to Local Authority level and whether the property is in an urban or rural location)
- Amenities (such as double glazing, patio door, garage, indoor toilet)
- Neighbourhood issues (such as noise or pollution/environmental problems).

An implicit value is assigned to each of these characteristics and a house value is then estimated based on them. Finally, a small number of cases had very low house values (less than 50,000). We examined characteristics of these properties individually, such as dwelling type, location, number of rooms, original mortgage and insured values and in cases where the house value seemed implausibly low (39 cases) we used the predicted house value generated in the hedonic regression described above.

The household representative is also asked if anyone in the household owns a second property and, if so, how many. They are asked where the first four properties are located. This allows us to identify whether or not second properties for the vast majority are in Ireland or not. For those with more than four properties if the fourth house is in Ireland, the rest are assumed to also be in Ireland, if not they are assumed to be properties abroad. The ownership of second properties is only known at household level as this question is answered by one representative of the household i.e. we know if someone in the house owns second properties but not whom. We do know at individual level, however, if a person is in receipt of rental income (specifically excluding rental of farm land and rental of property relating to a self employed business). We therefore assign ownership of second properties to the person(s) in the household receiving rental income.

We estimate the value of these properties by applying a price to rent (PR) ratio of 35. We use a figure of 35 as reports around 2006 estimated a yield of 3.3% (Goodbody's, 2012) while estimates from 2011 (DAFT, 2011) suggest yields of 4%. These suggest PR ratios in the 25-30 vicinity. However, when we calculated actual PR ratios from the SILC data by comparing the average rent tenants pay (those paying rent at full market price only) relative to the valuation they put on the dwelling they were living in, we found higher PR ratios, on average greater than 50. It should be remembered that at this stage, we are trying to predict the house price at close to peak levels; at a later stage we make adjustments for the fall from peak, in the order of 60 per cent.

In those households where no rental income is received we assume the second properties are holiday homes or second homes. There is no direct information in the survey on the value of these houses, nor is there any rental income accruing. Our approach is to assign a value to these homes in the following manner. We assume that the holiday home or second home is worth 25% of the reported value of the principal residence of the household, with a floor and ceiling of 50,000 and 250,000 respectively. We assign ownership to the person(s) who identify themselves as owner(s) of the principal dwelling or, in the handful of cases where the principal residence is rented ownership of holiday homes is assigned to the person(s) identifying themselves as renting the principal residence.

## 2.4 Valuing the Aggregate Housing Stock

Census 2011 (CSO, 2012) estimates that there were just under 2 million housing units nationwide. This includes both occupied and unoccupied permanent, habitable residential dwellings. As shown in Table 2.1, vacant properties comprise a significant proportion of the total stock: about 1 in 9.

Table 2.1: *Housing Stock, 2011*

|                              | <i>No. of<br/>housing units</i> |
|------------------------------|---------------------------------|
| Usually occupied by resident | 1,694,691                       |
| Vacant houses and apartments | 230,056                         |
| Holiday homes                | 59,395                          |
| Total                        | 1,994,845                       |

*Source:* Census of Population 2011

Approximately 170,000 dwellings are rented from a local authority or voluntary housing body. As these are not within the remit of the proposed property tax – or the Household Charge – they are excluded from further consideration here.

SWITCH is calibrated to earlier estimates of the 2012 population, representing some 1,626,000 private households. SILC also asks respondents if they own other dwellings. Based on this, we obtain an estimate of 106,000 properties which are let and 167,000 properties which are vacant or holiday homes. Kitchin (2012) provides an estimate of the total number of dwellings which are “in scope” for the household charge; his estimate incorporates Census 2011 data where available, and comes to approximately 1,720,000. The total coverage in the current analysis using the SWITCH model is approximately 11 per cent lower, at 1,525,000. The main source of this discrepancy is that there is an understatement of the number of rental properties from the perspective of landlords.<sup>6</sup> This discrepancy will affect the overall produce of a property tax, and will somewhat understate the impact on upper income groups – more detail will be given on this in discussion of the results. Overall, however, this level of coverage is enough to provide a

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<sup>6</sup> To the extent that some rental properties may be owned not by individuals but by companies, this may also contribute to explaining the gap. In this case it would, in any event, be difficult to trace the incidence of a tax to the ultimate owners of the property.

good picture of the income distribution effects of a property tax, and of variants which provide low income reliefs. The fact that the tax base included in the analysis is somewhat smaller than the full tax base means that estimates of the required tax rates to achieve given revenue targets can be regarded as somewhat cautious: with full compliance from the complete tax base, higher revenues could be attained or the tax rate could be lower.

There is evidence that owner estimates of residential property values tend to err on the side of optimism. For example, in the US Goodman and Itner (1992) found an average upward bias of 6 per cent when comparing self-assessed values with sales prices. Aside from this tendency, it is reasonable to expect that there may have been some lag in owner's adaptation to falls in prices from the peak in late 2006/early 2007 to the date of interviewing for SILC during 2008. This is a time when price developments in the market were unclear, and it may be that the peak values attained in 2006/7 had a higher salience for owners than the emerging downturn.

For the purposes of establishing the appropriate base for a property tax, we do not need to identify the precise extent of ownership bias, or the exact extent of the fall from peak values. It is the combination of the discount applied to owner-reported values and the fall from peak which is relevant.

We use three distinct house price scenarios in this report; these are

- Scenario A: A total discount factor of 60 per cent on owner reported prices as of 2008.
- Scenario B: A discount factor of 60 per cent for Dublin, and 50 per cent for non-Dublin housing.
- Scenario C: A discount factor of 73 per cent for Dublin and 69 per cent for non-Dublin housing.

Scenario A could be thought of as combining a small discount on owner-reported values with a "fall from peak" of 60 per cent nationwide. This reflects the idea that Dublin prices may have come close to long-run levels, while non-Dublin values may need some further fall before reaching long-run levels. Scenario B is similar, but reflects the current



state of Dublin/non-Dublin prices, where the fall from peak has been less severe in non-Dublin areas. Scenario C takes into account some comparisons of owner-reported prices in SILC with average prices from the permanent TSB/ESRI House Price Index. These suggest that a more substantial adjustment from owner-reported values may be necessary.

Applying these scenarios, we can derive alternative estimates of the value of the aggregate housing stock. For Scenario B, which is closest to current price developments, we estimate a total value of close to €300 billion. With a further adjustment to non-Dublin prices under Scenario A, this falls to €266 billion. The sharper discount factors in Scenario C imply an aggregate value of the housing stock of about €200 billion.

How do these estimates based on SILC data compare with those currently available from other sources? Lyons (2010) estimates the aggregate value of the housing stock at the peak of the house price cycle as close to €550 billion. By mid-2010 he estimates that the aggregate value had fallen to about €400 billion. Given further falls in prices since then, this would suggest that a figure of the order of €300 billion would be a reasonable estimate of the aggregate value of the housing stock for 2012. This estimate is not dissimilar from that indicated in Cussen and Phelan (2011). Both of these estimates are similar to the SILC-based estimates under Scenario B.

These independent cross checks suggest that Scenarios A and B will be of most interest. Nevertheless, we retain Scenario C as a sensitivity test.

## Section 3

### Property Value Tax with Low-Income Relief:

#### Structure and Estimated Yield

##### **3.1 Introduction**

In this section we examine the rates of tax on the market value of residential property required to reach given revenue targets, given alternative levels of income exemption limit. We also explore the way in which the required property tax rate varies depending on the level of house prices, and allowing for differential “falls from peak” for houses in Dublin and in other areas. Section 3.3 examines the potential role of deferrals of tax liability, and their potential impact on the flow of revenue from a property tax.

##### **3.2 Structure of the property tax**

The starting point for our analysis is a property tax at a single percentage rate on residential property in all locations nationwide. Property in a small number of categories is treated as exempt, as per the specification provided by the Group:

- all properties in State ownership and/or that of a local authority, HSE, Voluntary and Cooperative Housing Body, discretionary trust or a charity (registered as such with the Revenue Commissioners). These properties are identified using the information on housing tenure, which identifies local authority tenants, and those living rent-free or in properties rented at less than the market rent.

It is not possible to identify the following properties using SILC data, hence our detailed analysis does not exclude them

- properties subject to commercial rates and wholly used as a dwelling. This category is known to be a very small one

Similarly, it is not possible to identify and apply a waiver in respect of properties located in unfinished housing estates. Kitchin (2012) refers to estimates in the region of 34,000 for this category. While significant for those concerned, this would have little impact at national level on estimated tax rates or on the income distribution consequences.

Property tax is to be legally incident on the owner of the property – hence the landlord rather than the tenant will have legal responsibility for paying the tax. The ultimate incidence of a tax - whose living standard is reduced following its introduction – is often difficult to identify. In this first draft, it is assumed that the effective incidence is fully on the landlord; but the scope for testing the sensitivity of results to this assumption has been established.

The terms of reference of the Interdepartmental Expert Group allow for the possibility that there may be local variation in property tax rates. As a result, we have allowed in the model for property tax rates to vary across Dublin, other urban and rural areas. However in this first draft we maintain a single national rate in all cases, simply reporting the regional variation in tax yields in Section 4.3.

For banded systems, the model now allows a choice of up to 10 separate bands, and a choice of the amount of tax payable in respect of dwellings within each band. In the property tax specified by the Commission on Taxation (2009), the amount payable within each band is simply the rate of property tax applied to the mid-point of the band.

Minimum payments: Two types of minimum payment are considered

1. A minimum payment in respect of all households *except* those benefiting from a waiver
2. A minimum payment for all households, *including* those benefiting from a waiver

### *Low-income reliefs*

Countries vary in the ways in which they provide reliefs and adjustments in relation to property taxes. Within the US, property tax reliefs vary substantially across states and localities, as documented by the Lincoln Institute of Land Policy:

Tax reductions for residential property are a common means for states to ease the tax burden on homeowners and renters. Many states have multiple programs, with different levels of benefit available depending on the age, veteran status, and other characteristics of the taxpayer. The most common form of relief is a deduction from assessed value before the property tax rate is

applied. Some states also provide tax reductions that are tied to income (Lincoln Institute of Land Policy, 2012)

Closer to home, there UK tax linked to property value, the Council Tax, has a specific scheme of income-related relief, known as Council Tax Benefit. The maximum relief permitted is a 100 per cent reduction on the bill for Council Tax. Individuals who are entitled to Income Support, income-based Jobseeker's Allowance or the "guarantee credit" of Pension Credit could get this maximum assistance.<sup>7</sup> In order to examine the potential role of income-related relief, we sketch here a scheme which is broadly similar in structure to Council Tax Benefit, and analyse its potential impact.<sup>8</sup>

The scheme we analyse revolves around an income exemption limit: all those with incomes below this income exemption limit would receive a full waiver in respect of property tax. In order to avoid a situation in which a small increase in income would move an individual from below the income exemption limit, with no property tax liability, to above the limit, with a full liability, provision is also made for marginal relief i.e., the property tax liability would be limited to a proportion (in our analysis, 20 per cent) of the excess of income above the income exemption limit.

This relief is conditional purely on income. Relief could also be conditioned on other features such as assets. The de Buitléir report found evidence of combinations of high assets and low income that gave rise to concerns about the equity of the system, and such concerns might also emerge here.

There are several different income concepts in the tax/transfer system – income for income tax purposes, for PRSI, for USC etc. What income concept should be used for the income exemption limit? Gross income for income tax purposes is one possibility, but this includes some, but not all, social welfare payments. In our analysis we include *all* social welfare payments as well as the usual elements of gross income (employment and self-employment income, occupational pensions, interest, dividends and rent etc.).

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<sup>7</sup>[http://www.direct.gov.uk/en/MoneyTaxAndBenefits/BenefitsTaxCreditsAndOtherSupport/On\\_a\\_low\\_income/DG\\_10018923](http://www.direct.gov.uk/en/MoneyTaxAndBenefits/BenefitsTaxCreditsAndOtherSupport/On_a_low_income/DG_10018923)

<sup>8</sup> The UK government plans to bring in a replacement for Council Tax Benefit, which will include elements of local variation. As the nature of the replacement is not yet clear, we do not attempt to deal with this here.

Three income exemption limits are explored here:

- €10,000 per year
- €12,000 per year and
- €18,300 per year.

The income exemption limit is tailored to the number of people depending on that income, in the same way as social welfare payments. For example, when the income exemption limit for a single person is €12,000 per year, the limit for a couple is €20,000 i.e., 1.66 times the limit for a single person. This reflects the broad structure of social welfare payments, where the qualified adult allowance is approximately 66 per cent of the personal rate of payment for many schemes. Similarly, the limit rises further in respect of dependant children e.g., a single person with 3 children would have an income exemption limit of €12,000 plus 3 times €4,000 or €20,000. This approach can be summarised as having an implicit scale of 66 per cent (two-thirds) for a second adult and 33 per cent (one third) for each child. Other scaling factors could be used, but as these are the ones implicit in the current social welfare system, these are the ones used in the present analyses. The model, however, has the flexibility to examine other possible scales.

### 3.3 Property tax rates

Table 3.1 shows the property tax rates required to attain the different revenue targets, under alternative assumptions about the level of the income exemption limit. All of these figures are derived using the house price scenario which involves a 60 per cent discount from the owner-estimates of 2008 (Scenario A). The impact of alternative house price scenarios on required tax rates is shown in Table 3.2.

Table 3.1: *Property tax rate (euros per thousand of house value) for alternative revenue targets and income exemption limits*

| <i>Income exemption limit</i> | <i>Revenue target</i> |              |                |
|-------------------------------|-----------------------|--------------|----------------|
|                               | <i>€400m</i>          | <i>€600m</i> | <i>€1,000m</i> |
|                               | €                     | €            | €              |
| €10,000                       | 1.60                  | 2.50         | 4.20           |
| €12,000                       | 1.70                  | 2.60         | 4.40           |
| €18,300                       | 2.10                  | 3.00         | 5.40           |

Note: House price scenario in all cases is a 60 per cent fall in prices nationwide.

The rates are presented in terms of euros of tax per €1,000 of house price value. To obtain the equivalent percentage rate one need only divide by 10. For example, a revenue of €600m can be attained, with an income exemption limit of €12,000, using a property tax rate of €2.60 per €1,000 of house price value, or 0.26%.

Table 3.2: *Property tax rate (euros per thousand of house value) for alternative house price scenarios*

| <i>Income exemption limit</i> | <i>Combined house price fall/discount from owner reported value</i> |                       |                                   |
|-------------------------------|---|-----------------------|-----------------------------------|
|                               | <i>50% non-Dublin, 60% Dublin</i>                                   | <i>60% nationwide</i> | <i>69% non-Dublin, 73% Dublin</i> |
|                               | €   | €                     | €                                 |
| €10,000                       | 2.20  | 2.50                  | 3.40                              |
| €12,000                       | 2.30  | 2.60                  | 3.60                              |
| €18,300                       | 2.80  | 3.00                  | 4.30                              |

Note: Revenue target in all cases is €600m per annum.

### **3.4 Deferment versus Waivers**

Deferment or deferral of property tax means that the full tax due is payable at a later stage, (e.g., on the sale of the property, or following the death of the owner(s)). The main cost is therefore an interest cost on the tax due in the intervening period. There would also associated costs of administration of such a scheme; it would seem natural to minimise these by having a single scheme, centrally administered.

The net cost of deferral of tax liability on an individual property depends on

- the cost of funds to the authorities, and
- the interest charged on the deferred liability
- the length of time for which the liability is deferred – this could be until the sale of the property on the death of the owner
- the amount of the tax liability on the individual property

The net aggregate cost depends also on

- the proportion of taxpayers benefiting from deferment of the liability
- the values of these properties

In the scheme in operation in Northern Ireland, deferment is made available only to those aged over 60, and with equity of at least 40 per cent of the house value. (Land and Property Services, 2010). The interest rate on the deferred tax is charged at 1% below the Bank of England base rate, subject to a minimum of 1 per cent. In current circumstances, the

minimum cost of funds to the Irish government is close to 7 per cent, and an argument could be made that a higher figure would be appropriate. A deferment scheme could be made cost neutral by charging a sufficiently high interest rate.

In Northern Ireland, the deferment option is available, with a very low interest rate, to a high proportion of those aged 60 and above. However, there is limited take up of the scheme.<sup>9</sup> Nevertheless, it can be seen as having an important “safety net” role in ensuring that property tax bills do not force an older person to sell their home. A closer examination of the experience in Northern Ireland and elsewhere with deferment options is warranted.

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<sup>9</sup> W.J. McCluskey, personal communication.

## Section 4

### Property Value Tax: Distributional Impact

#### **4.1 Introduction**

How is the burden of a property tax distributed? Is it broadly proportional to incomes, or does it bear particularly heavily on those with low incomes? How are the results affected by the level of the income exemption limit chosen? These are the questions explored in this Section. The incidence assumptions used here are that owners of the properties, including owner occupiers and landlords, bear the burden of the tax.

Section 4.2 examines the impact of a property tax across the income distribution, from the poorest one-tenth (“decile”) to the richest. Section 4.3 documents the impact on a broad geographic basis, distinguishing between Dublin, other urban areas, and rural areas. Section 4.4 outlines the main impacts on financial incentives to work.

#### **4.2 Impact of a property tax by income group**

We use Scenario A, a nationwide 60 per cent discount on owner-reported house prices, as the base case in our analysis the distributional impact of a property tax. Other scenarios, involving differential adjustment as between Dublin and non-Dublin prices, are considered in Section 4.3.

In terms of the property tax specification, we focus initially on a revenue target of €600m and an income exemption limit of €12,000. This corresponds approximately to the rate of payment of the State Contributory Pension. Thus, a single pensioner with no other income would obtain a full waiver under this approach. Married pensioners, both in receipt of the full State Contributory Pension, would not be eligible for a full waiver at this level of income exemption limit. The application of the equivalence scale would mean that the income exemption limit for a couple would be €20,000 – whereas the couple could be in receipt of State pensions totalling about €24,000. Marginal relief provisions would mean that the maximum property tax payable in this case would be €800 per year. Higher and lower exemption limits are considered after we consider the impact of this base case.



Table 4.1 summarises the main distributional effects. The average impact across all households is a reduction in disposable income of 0.6 per cent. For the lowest two deciles – the bottom 20% of the income distribution – there is little change. The greatest proportionate losses are for the top decile, at 0.9 per cent, followed by deciles 7 to 9, with losses of 0.7 per cent. Other income deciles see losses which are, at 0.4 to 0.6 per cent, close to the average.

The lower losses for the bottom deciles reflect the fact that a small proportion of these deciles actually experience any loss from the property tax (6 per cent of the bottom decile and about 30 per cent of the second decile). In part this reflects the fact that property tax liabilities may be less than the household charge it replaces. Another factor is that many of those in the bottom deciles are not owner occupiers. However, by the third decile, there are substantial numbers of households experiencing losses. The average change for those losing is close to €5 per week. The variation in this figure is considered later, in Table 4.2. At the top end of the income distribution, property tax liabilities average about €16 per week or €850 per year.

Table 4.1: Impact of a Property Tax relative to 2012 Policy (including Household Charge)  
Property tax rate 0.26%, Income exemption limit €12,000, Revenue target €600m

| Decile | % change in income | Average change in income (€pw) | Average loss for those losing | % of decile losing |
|--------|--------------------|--------------------------------|-------------------------------|--------------------|
| 1      | 0.1                | 0.4                            | -7.3                          | 6%                 |
| 2      | -0.1               | -0.7                           | -4.7                          | 28%                |
| 3      | -0.5               | -2.6                           | -4.8                          | 59%                |
| 4      | -0.4               | -3.1                           | -6.1                          | 55%                |
| 5      | -0.6               | -4.5                           | -6.8                          | 68%                |
| 6      | -0.6               | -5.9                           | -7.6                          | 78%                |
| 7      | -0.7               | -7.7                           | -9.9                          | 78%                |
| 8      | -0.7               | -7.3                           | -9.4                          | 77%                |
| 9      | -0.7               | -9.0                           | -10.7                         | 84%                |
| 10     | -0.9               | -14.2                          | -16.3                         | 87%                |
| All    | -0.6               | -5.5                           | -9.1                          | 62%                |

### Size of Losses by Income Group

Table 4.2 provides an insight into the dispersion in property tax liabilities at different income levels. For those at the lowest incomes, about 94 per cent do not lose. But those who do can lose more than €15 per week (exact figures cannot be reported because of CSO protocols governing reporting of cells with small numbers of cases). In total, about 10,000 cases out of the bottom decile experience some losses. In the second decile, about 12,000 cases lose between €5 and €10 per week; the corresponding figure for the third decile is close to 30,000. In the third deciles, there are also losses greater than €10 per week and greater than €15 per week, with close to 10,000 cases involved.

While relatively small in number, these are low income/high property value cases where property tax liabilities appear not to be eliminated, or even much reduced, by the income exemption limit and marginal relief. A closer examination of the characteristics of this group appears to be warranted.

Table 4.2: Number of Households (Thousands) Classified by Decile of Equivalised Disposable Income and Size of Gain or Loss from Property Tax

| Range of equivalised disposable income | Total          |           |           |          |          |         |         | Total |
|--|----------------|-----------|-----------|----------|----------|---------|---------|-------|
|  | in small cells | < -€15 pw | < -€10 pw | < -€5 pw | < -€1 pw | < €1 pw | < €5 pw |       |
| <= 219.82                              | 10.2           | *         | *         | *        | *        | 77.8    | 74.5    | 162.5 |
| > 219.82 <= 270.29                     | *              | *         | *         | 12.0     | 27.5     | 71.6    | **      | 162.0 |
| > 270.29 <= 310.86                     | 9.2            | *         | *         | 28.2     | 57.6     | 53.4    | 14.8    | 163.2 |
| > 310.86 <= 365.37                     | *              | *         | 12.2      | 36.3     | 36.9     | 54.6    | **      | 162.6 |
| > 365.37 <= 429.14                     | 13.8           | *         | *         | 52.7     | 44.0     | 40.9    | 11.2    | 162.5 |
| > 429.14 <= 485.47                     |                | 11.3      | 16.1      | 55.6     | 38.5     | 37.7    | *       | 161.4 |
| > 485.47 <= 550.8                      |                | 18.2      | 23.1      | 40.7     | 45.8     | 29.7    | *       | 163.4 |
| > 550.8 <= 625.76                      |                | 11.2      | 17.6      | 43.7     | 47.7     | 41.6    | *       | 163.1 |
| > 625.76 <= 755.24                     |                | 21.7      | 34.5      | 51.1     | 28.5     | 23.5    | *       | 162.5 |
| > 755.24                               |                | 43.4      | 27.7      | 44.7     | 26.1     | 19.2    | *       | 162.7 |
| All                                    |                | 117.6     | 150.6     | 5        | 357.3    | 450.0   | 7       | 0     |

Notes: \* omitted for confidentiality reasons, fewer than 30 cases in sample.  
 \*\* omitted to preserve confidentiality.

### Alternative Income Exemption Limits

Tables 4.3 and 4.4 compare the effects of alternative income exemption limits. Table 4.3 shows the percentage change in income for each decile group, while Table 4.4 shows the proportion of each decile which loses from the introduction of a property tax. (Recall,

there are some gains because the property tax replaces the pre-existing Household Charge).

As expected, the higher the income exemption limit, the greater the degree of protection afforded to low income groups. The trade-off for this protection is that, in order to attain the same revenue target, the property tax rate has to be higher, with negative consequences for those higher up the income scale. With the €10,000 limit, there is no change on average for the bottom decile, but there are average losses from the second decile onwards. With the €18,300 limit each of the bottom 4 deciles, on average, experience gains relative to the Household Charge, or are unaffected. Table 4.4 shows that numbers experiencing losses in the bottom 4 deciles are also very limited.

The €12,000 limit has an intermediate effect, closer to that of the €10,000 limit. As there is a large gap between the €12,000 and €18,300 limits, it would be of interest to examine some intermediate possibilities. For example, an income exemption limit of €15,000 would imply a limit for a couple of €25,000 – somewhat above the rate of State Contributory Pension for a couple, where each is entitled to the full pension in their own right.

Table 4.3: *Changes in Income by Decile: Impact of a Property Tax with Alternative Income Exemption Limits*

| <i>Income exemption limit</i> |                |                |                |
|-------------------------------|----------------|----------------|----------------|
| <i>Decile</i>                 | <i>€10,000</i> | <i>€12,000</i> | <i>€18,300</i> |
| Bottom                        | 0.0            | 0.1            | 0.2            |
| 2                             | -0.4           | -0.1           | 0.1            |
| 3                             | -0.7           | -0.5           | 0.2            |
| 4                             | -0.4           | -0.4           | 0.0            |
| 5                             | -0.6           | -0.6           | -0.5           |
| 6                             | -0.6           | -0.6           | -0.7           |
| 7                             | -0.7           | -0.7           | -0.8           |
| 8                             | -0.6           | -0.7           | -0.7           |
| 9                             | -0.7           | -0.7           | -0.9           |
| Top                           | -0.8           | -0.9           | -1.1           |
| All                           | -0.6           | -0.6           | -0.6           |

Table 4.4: *Percentage of Income Decile Losing from Property Tax*

| <i>Income exemption limit</i> |                |                |                |
|-------------------------------|----------------|----------------|----------------|
| <i>Decile</i>                 | <i>€10,000</i> | <i>€12,000</i> | <i>€18,300</i> |
| Bottom                        | 14             | 6              | 2              |
| 2                             | 52             | 28             | 6              |
| 3                             | 76             | 59             | 6              |
| 4                             | 60             | 55             | 16             |
| 5                             | 71             | 68             | 61             |
| 6                             | 78             | 78             | 75             |
| 7                             | 79             | 78             | 69             |
| 8                             | 77             | 77             | 75             |
| 9                             | 84             | 84             | 83             |
| Top                           | 88             | 87             | 88             |
| All                           | 68             | 62             | 48             |

### *Minimum payments*

Our analysis allows for two forms of minimum payment. First, a minimum payment applicable to all those not benefiting from a waiver; second a minimum payment applying to all irrespective of waiver status. The first of these has very limited impact, because effectively a tax rate of 0.2 to 0.3 per cent applied to the lowest valued properties – in the region of €40,000 – yields a tax liability which is closer to or greater than the €100 minimum.

The second form of minimum – a contribution to be paid by all, irrespective of waiver status – has a slightly greater impact. Our estimates suggest that this could affect around 100,000 households, raising an additional €10m. However, the distributional pattern of this minimum charge is very much skewed towards those on low incomes. The total revenue gain is of the order of €10m per year, with more than two-thirds of this coming from the bottom 2 deciles, and almost nine-tenths from the bottom four deciles.

#### ***4.3 Impact of a property tax by broad location***

The terms of reference for the Interdepartmental Expert Group makes explicit reference to ensuring “the maximum degree of fairness between and across both urban and rural areas”. Thus, the geographical distribution of the property tax burden is also of interest. It should be noted that the terms of reference also make mention of “an appropriate element of local authority responsibility subject to any national parameters”. This could be interpreted as allowing for differential rates of property tax across local authorities. However, as a starting point, we examine the distribution of the burden of a property tax across broad areas (Dublin, other urban and rural) when a single rate of property tax is applicable to all locations.

Given a single rate of tax, property tax liabilities will then be broadly proportionate to the aggregate value of the housing stock in each area. This varies depending on assumptions regarding the evolution of prices in Dublin and non-Dublin areas. As explained earlier, we have constructed three scenarios for house prices: differing paths for Dublin and non-Dublin prices are a part of these. Table 4.5 summarises the results in terms of the distribution of the property tax burden, and compares this with the shares of disposable income in the three areas.

Dublin’s share of property tax revenue ranges from 46 to 51 per cent. This compares with a share in disposable income which is much lower, at 39 per cent. Other urban areas have property tax shares of between 22 and 25 per cent, as against a higher share of disposable income of 30 per cent. Rural areas are closest to being in balance, with a share of income of 32 per cent and a share of property taxes between 27 and 30 per cent.

Table 4.5: Shares of the Property Tax Burden and of Disposable Income by Location

| Scenario                                       | Location |             |       |
|--|----------|-------------|-------|
|  | Dublin   | Other Urban | Rural |
|  | %        | %           | %     |
| Share of disposable income                     | 39       | 30          | 32    |
| A. 60% decline nationwide                      | 51       | 22          | 27    |
| B. 60% fall in Dublin, 50% non-Dublin          | 46       | 25          | 30    |
| C.73% discount-cum-fall Dublin, 69% non-Dublin | 48       | 24          | 28    |

#### **4.4 Impact on Financial Incentives to Work**

In this section we examine the impact of a move towards a value based property tax with an income exemption limit of €12,000 and 20 per cent marginal relief would have on incentives to work. We assume a 60 per cent decline in house values from 2008 in the results discussed below. We focus on the two main financial incentives to work. The first is the replacement rate (RR) which is the ratio between net income out of work and net income when in work. A high replacement rate can be seen as reducing the financial incentive to take up a job if unemployed, but also indicates effective income support for those who lose their jobs. The second aspect we examine is the impact on marginal effective tax rates (METR). The METR indicates what proportion of an increase in earnings is taxed away, either through an increase in tax and/or social insurance contributions, or a reduction or withdrawal of social welfare benefits. It can be seen as a measure of the financial incentive to progress through either working longer hours, or with greater skill or effort.

Looking first at replacement rates facing those who are unemployed, we find that

- More than 9 out of 10 replacement rates faced by the unemployed are unchanged
- The increases in replacement rates which do occur are almost all small (1-2 percentage points)
- Where the replacement rate increases, the initial replacement rate is generally low or moderate. Only 11 per cent of this small group who see their replacement rate rise had an initial replacement rate of 80 per cent or above.

Somewhat greater effects are found for replacement rates facing employees:

- More than 8 out of 10 replacement rates faced by the employees are unchanged

- Most increases in replacement rates are again small however (1-2 percentage points)
- Where the replacement rate increases, the initial replacement rate is again generally low or moderate. Only 9 per cent of this small group who see their replacement rate rise had an initial replacement rate of 80 per cent or above.

Finally, turning to marginal effective tax rates facing employees, we find that

- Less than 1 per cent would be affected by the marginal relief provisions
- The METR rises by less than 10 percentage points for around one fifth of those affected, and by up to 20 percentage points for the remaining four fifths
- The majority, close to 90 per cent, of those affected currently face an initial METR of less than 40 per cent

## Section 5

### Property Tax based on Banded Market Values

#### **5.1 Introduction**

In this section we examine the possible role of banded market values in a property tax system. It is noteworthy that the use of banded values is limited to one country – the UK. All other countries using capital values as the basis for property tax system do so on the basis of what is termed an “exact” capital value. It may therefore be best to think of banded values as playing an interim role until the development of a fully fledged system based “exact” values. Our analysis brings out the contrasts between the exact and banded systems, and the particularities of the UK system, which not only includes banded values, but also imposes limits on the ratio between tax liabilities between top and bottom bands.

#### **5.2 Advantages and disadvantages of banded systems**

Plimmer et al. (2002) list a number of advantages of a banded system. These include the following:

- A banded system is capable of being introduced quickly
- Banding makes the valuation task easier
- Banding reduces the volume of appeals

As against this, banding involves a loss of horizontal and vertical equity. In the UK case this was further compounded by the way in which the relative amounts payable for properties in different bands was fixed in a way which effectively imposed a higher burden on low valued properties, and a lower than proportionate burden on high valued properties. This is not a necessary feature of banding, but as the UK is the only country employing this system, it is necessary to distinguish features of the system which are inherent in banding and those which are UK-specific.

Plimmer et al. note that horizontal and vertical equity would be reintroduced by a discretised *ad valorem* tax base. “However, if banding is to remain the more and narrower tax bands are necessary”.

One major advantage of a banded system is that it is capable of being introduced quickly.



### **5.3 Possible bands for property tax values**

The Commission on Taxation (2009) recommended the use of a banded system, and made specific suggestions as to the bands to be used. The bands proposed by the Commission were wide, even in the context of a house price distribution near its peak. The bands proposed were under €150,000, then in steps of €150,000 to €750,000. The remaining points were a band of €750,000 to €1m, and €1m to €1.5m. There are two major difficulties with this approach.

- First, the bands proposed are such that on the Commission’s own calculations, about two-thirds of all households would be in a single band – and 5 out of 6 households would be covered by two bands.
- Second, even with the narrowest of the bands proposed by the Commission, a move from a lower to a higher band would involve a rise in property tax liability of about €375 per year.

These difficulties can be avoided using a similar number of bands – avoiding the use of bands where the number of houses is low, and having narrower bands to give more precision – and a smaller “jump” in tax liability – where the bulk of property values are to be found.

The bands examined in our analysis are illustrated in Table 5.1, which also shows an estimate of the proportion of houses falling within each of these proposed bands.

Table 5.1: *Property Tax Bands*

| <i>Self-Reported<br/>Property Value<br/>(€'000s)</i> | <i>Frequency</i> | <i>Percent</i> |
|--|------------------|----------------|
| 0-100  | 2,010            | 38.3           |
| 100-150  | 1,339            | 25.5           |
| 150-200  | 1,002            | 19.1           |
| 200-250  | 261              | 5.0            |
| 250-300  | 239              | 4.6            |
| 300-350  | 108              | 2.1            |
| 350-400  | 149              | 2.8            |
| 400-450  | 11               | 0.2            |
| 450-500  | 21               | 0.4            |
| >500   | 107              | 2.0            |

#### 5.4 Empirical analysis of banded and exact property tax systems for Ireland

Table 5.2 summarises the distributive impact of a banded system, relative to current (2012) policy. The broad income distribution effects are similar to those of the “exact” system. The amount of tax is set at 0.33 per cent of the midpoint of the band – this higher value is needed to ensure revenue neutrality. The income exemption limit and marginal relief provide protection to most, though not all, of those in the lowest two income groups (deciles).

Table 5.2: 2012 v Banded Property Tax (0.33%)

| <i>Decile</i> | <i>Percentage change by decile</i> | <i>avg gain/loss by decile (€ p.w.)</i> | <i>avg gain/loss for losers</i> | <i>agg €m change</i> | <i>Percentage who lose in each decile</i> |
|---------------|------------------------------------|---|---------------------------------|----------------------|---|
| 1             | 0.1                                | 0.3                                     | -8.7                            | 2.3                  | 7%  |
| 2             | -0.2                               | -1.0                                    | -6.0                            | -8.3                 | 27%                                       |
| 3             | -0.6                               | -3.1                                    | -6.5                            | -26.7                | 54%                                       |
| 4             | -0.5                               | -3.3                                    | -7.9                            | -28.2                | 48%                                       |
| 5             | -0.6                               | -5.0                                    | -8.8                            | -42.1                | 60%                                       |
| 6             | -0.6                               | -5.7                                    | -9.8                            | -48.2                | 62%                                       |
| 7             | -0.8                               | -7.9                                    | -11.8                           | -67.3                | 69%                                       |
| 8             | -0.7                               | -7.4                                    | -10.0                           | -63.0                | 75%                                       |
| 9             | -0.7                               | -9.1                                    | -12.9                           | -77.1                | 73%                                       |
| 10            | -0.7                               | -11.5                                   | -15.3                           | -97.6                | 78%                                       |
| All           | -0.6                               | -5.4                                    | -10.5                           | -456.1               | 55%                                       |

Table 5.3 gives a more focused comparison of the property tax based on exact values and that based on a banded system. Most of the impact of the change appears to occur within the income deciles, so that it is horizontal equity which is worst affected by the move to a banded system. There is, however, a significant gain for those in the top income decile, who would tend to have high-valued houses. The use of a fixed property tax amount for the top category acts as a “cap” on the maximum payment which is not present in an exact system. There are also small losses (one-tenth of one per cent) for the bottom 3 deciles.

Table 5.3: *Exact Values Property Tax (0.26%) v Banded Property Tax (0.33%)*

| <i>Decile</i> | <i>Percentage change by decile</i> | <i>avg gain/loss by decile (€p.w.)</i> | <i>avg gain/loss for losers</i> | <i>agg €m change</i> | <i>Percentage who lose in each decile</i> |
|---------------|------------------------------------|--|---------------------------------|----------------------|---|
| 1             | -0.1                               | -0.17                                  | -2.31                           | -1.5                 | 8%  |
| 2             | -0.1                               | -0.24                                  | -2.22                           | -2.0                 | 22%                                       |
| 3             | -0.1                               | -0.52                                  | -2.65                           | -4.4                 | 41%                                       |
| 4             | -0.0                               | -0.27                                  | -2.87                           | -2.2                 | 45%                                       |
| 5             | -0.0                               | -0.29                                  | -2.87                           | -2.5                 | 53%                                       |
| 6             | 0.1                                | 0.84                                   | -3.28                           | 7.1                  | 57%                                       |
| 7             | 0.0                                | 0.30                                   | -3.50                           | 2.5                  | 67%                                       |
| 8             | -0.1                               | -0.80                                  | -3.22                           | -6.8                 | 69%                                       |
| 9             | -0.1                               | -0.93                                  | -3.97                           | -7.9                 | 70%                                       |
| 10            | 0.2                                | 2.75                                   | -4.17                           | 23.4                 | 66%                                       |
| All           | 0.01                               | 0.07                                   | -3.32                           | 5.8                  | 50%                                       |

## Section 6

### Alternative Bases for the Calculation of a Property Tax

#### **6.1 Introduction**

The market value of housing can be related to a number of characteristics of the property. Location is, of course, chief among these. Although very detailed locational information is best for this purpose, broader measures can also play a role. Then there are a number of characteristics of the property itself which play a role:

- Dwelling type: whether a property is a detached house, semi-detached, terraced or an apartment or bedsitter
- Number of rooms
- Number of bedrooms
- Floor area

Can such characteristics, whether singly or in combination, provide an approximation of housing value which would be suitable for use as the base for a property tax? This issue has been investigated by Mayor et al. (2010) using data from the Irish National Survey of Housing Quality (Watson and Williams, 2003). While housing values have been through a bubble and bust cycle since then, the structural issues involved in attempting to explain house price variation are very similar even in the context of the current housing market. Section 6.2 summarises the analysis and findings of Mayor et al. Section 6.3 details the implementation of a similar approach in an extension of the SWITCH tax benefit model, to assess the impact of implementing a property tax using an approximation of market value. Taxation of site values rather than property values is considered in Section 6.4.

#### **6.2 Housing Prices and Property Characteristics**

Mayor et al. (2010) examine a strategy for designing a property tax when direct information on property values is not available. In their paper, the authors evaluate how closely one can predict house prices based simply on some key characteristics of the property.<sup>10</sup> They examine the degree of accuracy which can be attained with information on various characteristics of housing, and the nature of the discrepancies and errors which arise using this approach.

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<sup>10</sup> The technique is known as hedonic regression analysis.

### *Irish National Survey of Housing Quality*

The dataset used in the paper was the Irish National Survey of Housing Quality (INSHQ), which was conducted in 2002 by the Economic and Social Research Institute on behalf of the Department of the Environment, Heritage and Local Government. This dataset contains over 40,000 household observations, with information available on a much wider range of property characteristics than in most surveys. The type-of-dwelling variable contains 6 categories:

- detached house/bungalow
- semi-detached house/bungalow
- terraced house
- flat-apartment
- flat apartment in a converted house and
- mobile home/caravan.

The year of construction, the number of rooms and the number of bedrooms, and the floor area of the dwelling are also included in the data. Approximately 30 per cent of respondents declared they knew the floor area of their home and gave a figure. Therefore, the sample size for analysis using a floor area variable was substantially reduced (approximately 7,000 as against a sample of over 25,000 when information on a wide range of variables excluding floor area is used). In addition, geographical information is provided, with the maximum level of disaggregation being a local variable (coinciding with county in most cases, but with multiple values for some counties such as Dublin).

The analysis is restricted to owner-occupiers, and excludes the small numbers living in caravans or mobile. All apartments, whether in a converted house or not, are grouped together into a single 'apartments' category. In order to take account of coding errors relating to the price of the house, the authors chose to exclude properties with a value below a cut-off of £40,000 for homes outside of Dublin and £90,000 for homes in Dublin. Finally, houses being purchased from a local authority under shared ownership schemes were also excluded. The final sample comprised of 25,016 observations, with only 7,023 of these having a value for floor area, in square meters.

### *Methods*

Mayor et al. discuss how the hedonic approach (developed initially by Griliches, 1961) can be applied to the housing market. Houses can be regarded as having different bundles

of attributes, such as the number of rooms, bathrooms and the availability of off-street parking as well as characteristics pertaining to the neighbourhood, such as quality of schools, transport facilities and safety from crime. All of these attributes make different contributions to the price of the house. With a large enough sample of housing market transactions, econometric analysis can separate out the implicit price of the attributes. This is done using a hedonic house price model, where the price of the house is a function of the house's structural or physical characteristics, neighbourhood or location characteristics and environmental characteristics. This information can then be used to estimate house prices based on information about the attributes of the house and its environs. The accuracy of these predictions depends on the information set used to estimate the relationship. Before using such an approach, it is important to assess the degree to which variation in prices is captured by the model, and the nature of the discrepancies between estimated and actual prices.

### *Results*

Mayor et al. use a number of different combinations of characteristics of a house to estimate the house value. The initial results highlight the importance of including geographical effects in the analysis. Including the geographical location of a property (using county dummies) significantly increases the explanatory power of the model. For example, adding geographical effects to a model with just the size of the dwelling increases the proportion of the variation in prices explained from 17 per cent to 53 per cent.

| <i>Variable</i>                                    | <i>Number of observations</i> | <i>Standard deviation</i> | <i>Median</i> | <i>Minimum</i> | <i>Maximum</i> |
|--|-------------------------------|---------------------------|---------------|----------------|----------------|
| All variables                                      | 7,023                         | 48,031                    | 3,888         | -449,697       | 333,510        |
| Square metres, bedrooms, year built, dwelling type | 7,023                         | 50,483                    | 3,950         | -448,209       | 336,543        |
| Square meters and dwelling type                    | 7,023                         | 55,299                    | 5,711         | -489,675       | 502,641        |
| Rooms, bedrooms, year built, dwelling type         | 25,016                        | 45,887                    | 4,526         | -531,562       | 377,553        |
| Rooms and dwelling type                            | 25,016                        | 47,241                    | 4,993         | -541,901       | 359,081        |
| Bedrooms, dwelling type and rooms                  | 25,016                        | 47,162                    | 5,026         | -542,436       | 354,930        |

Source: Mayor et al. (2010), Table 5.

By construction, the average error across all cases is zero. Ideally one would like to find a prediction in which the spread of errors was close to zero. The standard deviation of the errors is therefore of particular interest. Using geographical location as a base, the authors compare models adding just one further explanatory variable. Adding just the number of rooms in a property provides the lowest standard deviation, compared to models using the size of the property in square metres, dwelling type, number of bedrooms or the year of construction. A similar pattern emerges when combinations of explanatory variables are used in the analysis. The standard deviation from a model combining geographical effects with the number of rooms and dwelling type is lower than for the models using floor area (square metres).<sup>11</sup> just €1,300 greater than when the number of bedrooms and the year of construction are also included in the analysis. Including the size of the property in square meters with any other combination of the explanatory variables increases the standard deviation by between €1,000 and €8,000. Even if we ignore the problem of home owners not being able to accurately predict the floor area of their property, the results suggest that including floor area in the analysis does not increase the accuracy of the estimates.

Mayor et al. also examine how the errors in prediction of housing values vary with the price of the house. Regardless of the characteristics used to estimate the house price, the resulting valuation method makes errors which can be regarded as regressive in terms of property values i.e., lower value dwellings tend to be over-valued and high value homes tend to be under-valued. Similarly, the results show that the dwellings of people with high incomes are under-assessed. The analysis according to employment class also confirms this result, with the homes of professional/managerial workers being under-valued. Overall, the value of properties of younger owners, the unskilled and unemployed tend to be over-valued, while high income and high professional owners see their house values under-estimated.

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<sup>11</sup> A slightly lower standard deviation can be obtained if information on the year built, and on the number of bedrooms, is also included; but the year built information is not available in the SILC dataset.

### *Implications*

Although the hedonic approach can be viewed as a useful tool in estimating property value, Mayor et al. (2010) highlight a number of drawbacks of relying on the approach. A property tax system based purely on hedonic estimation would tend to underestimate the prices of high value properties, and over-estimate the prices of low value housing. In cases where the hedonic approach is used, estimates based on geographical effects, the number of rooms and the dwelling type seems to perform at least as well as when other variables, such as floor area, year of construction and number of bedrooms, are used. This means that when using the SILC dataset, where the number of rooms and dwelling type are available, but the floor area is not, we can reasonably assume that the broad accuracy of the approach using floor area will be similar to that for the approach based on number of rooms.

If designing a scheme based on such characteristics, floor area would have advantages over number of rooms, because it is less open to behavioural responses by the property owner. For example, the number of rooms could be reduced by removing dividing walls. In some circumstances, this could be at relatively low cost and relatively little impact on the usage of the space. Alterations to reduce floor area would tend to have more impact on the occupier. However, in analytic terms, given that floor area is not available with the SILC dataset, it is reasonable to treat number of rooms as operating like a proxy for the unknown information on floor area, when trying to establish the impact of a tax scheme based on floor area. The combination of number of rooms and location explains about the same proportion of variation in price as the floor area/location

### **6.3 A Property Tax based on Estimated Market Value**

When the only variables used to predict housing prices are categorical, it is possible to arrive at estimated prices in a more intuitive fashion: simply take the average price of housing for every given combination of characteristics e.g., the average price for a detached house with 5 rooms, in a particular county. More generally this approach involves categorising properties based on their characteristics and calculating the average property value for each category. From the SILC data, we can categorise properties based on their location (local authority level), dwelling type and number of rooms. As discussed in Mayor et al. (2010), the number of rooms in a property performs remarkably well when acting as a proxy for floor area.



Although some houses are reported as having much higher numbers of rooms in the SILC data, less than 5 per cent of cases have more than 9 rooms. To ensure there are sufficient numbers of houses in each cell of the cross tabulation we group all those properties with greater than nine rooms together. The distribution of properties according to the number of rooms is shown in Table 6.x:

Table 6.2: *Property Distribution according to Number of Rooms*

| <i>Number</i> | <i>Frequency</i> | <i>Percent</i> |
|---------------|------------------|----------------|
| 1             | 19               | 0.4            |
| 2             | 138              | 2.6            |
| 3             | 287              | 5.5            |
| 4             | 693              | 13.2           |
| 5             | 1,609            | 30.7           |
| 6             | 1,148            | 21.9           |
| 7             | 720              | 13.7           |
| 8             | 376              | 7.2            |
| 9             | 257              | 4.9            |

Note: The following are not counted as rooms: kitchenette, scullery/utility room, bathroom, toilet, garage, consulting rooms, office, and shop.

The dwelling type variable is divided into six categories:

- detached house
- semi-detached house
- terraced house
- apartment/flat/bedsitter
- mobile home/caravan/temporary building
- other<sup>12</sup>

Table 6.3 shows the distribution of the most frequent dwelling types in the data.

Table 6.3: *Property Distribution according to Dwelling Type*

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<sup>12</sup> A seventh category (houseboat) is allowed for, but is omitted because there are no observations in the data.

| <b>Dwelling</b>                 | <b>Frequency</b> | <b>Percent</b> |
|---------------------------------|------------------|----------------|
| <b>Detached House</b>           | 2,312            | 44.1           |
| <b>Semi-Detached House</b>      | 1,479            | 28.2           |
| <b>Terraced House</b>           | 1,277            | 24.3           |
| <b>Apartment/Flat/Bedsitter</b> | 161              | 3.1            |

The location variable is at local authority level. We therefore have 34 location categories, based mainly at county level, with Dublin, Cork, Waterford, Limerick, Galway and Tipperary having more than one category each e.g., for Dublin there are 4 local authority areas, Dublin City Council, Dublin South, Dublin-Fingal and Dún Laoghaire-Rathdown. The cross-tab of these three characteristics therefore results in 1,836 cells (6 dwelling types × 34 locations × 9 rooms categories), of which 663 are populated by one or more observations. It is not surprising that a relatively low percentage of cells are populated, as many of the cells are the result of highly unlikely combinations of characteristics. For example, there are no observations of nine-room apartments in any county, resulting in 34 empty cells.

So how does this approach compare with the self-reported property values in SILC 08? Using similar assessment techniques as reported in Mayor et al., we assess the errors from the cross-tab estimation of house values to determine its accuracy. The Absolute Value Error (ABV) is the difference between the estimated price and the self-reported house price. This error is calculated as follows:

$$ABV = Estimated\ Value - Self-reported\ Value \quad (1)$$

If the ABV is positive (negative), the dwelling's value is over-estimated (under-estimated). This is a negative (positive) outcome for the home owner as they end up paying less (more) tax than they should. Similarly, the assessment to self-reported price ratio (A/S) measures the degree of accuracy of a valuation. The A/S ratio is the best available indicator of the ratio of a property's assessed value to its true price. The valuation method may be described as "property value regressive"<sup>13</sup> if the A/S ratio

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<sup>13</sup> The terms regressive and progressive are most commonly used with respect to incomes, so it is useful to clarify here that the concept is being applied with respect to property values instead. "Property value regressive" means that high property values are underestimated and low property values are overestimated.

declines with increasing property values and is progressive when A/S ratios increase with higher property values.

Table 6.4 confirms that the cross tabulation approach results in errors which are regressive in terms of property values. The ABV errors decline as the property value increases, and are largest in absolute terms at the extremes of the property value distribution. Similarly, the A/S ratio is largest at the lowest property values, and lowest at the highest property values. As Mayor et al. argue, regressive errors in the valuation of property for tax purposes result in an implicit cross-subsidy from those being over-valued to those being under-valued. That is, those with lower actual property values would implicitly subsidize those with higher property values.

Table 6.4: *Analysis of Prediction Errors using Cross tabulation of Local Authority, Number of Rooms and Dwelling Type*

| <i>Self-Reported Property Value (€'000s)</i> | <i>Mean error (€)</i> | <i>Assessed value/Self-reported value</i> |
|--|-----------------------|---|
| 0-100  | 14,183                | 1.2                                       |
| 100-200                                      | 4,286                 | 1.0                                       |
| 200-300                                      | -37,615               | 0.8                                       |
| 300-400                                      | -55,902               | 0.8                                       |
| >400   | -234,517              | 0.6                                       |

Table 6.5 examines a property tax based on housing values predicted from a grid, or crosstabulation based on dwelling type, number of rooms and local authority area. The broad shape of the distributional impact is similar to that for the exact system. But a closer examination in Table 6.6 reveals some differences. Again, as with banding, the main differences appear to be within decile categories rather than between them. There are fewer discrepancies in the lower income deciles, in part because the income exemption limit tends to lead to zero property tax liabilities under either approach. But for deciles 3 to 10 (the top) between 20 per cent and 40 per cent of the decile lose from the “averaging” of bills inherent in the crosstabulation approach. The *average* amounts involved are between €2.50 and €5.40 per week – further investigation of the spread of amounts involved would be of interest.

Table 6.5: 2012 vs Property Tax based on Crosstabulated Values (Dwelling type, No. of rooms, Local Authority)  
60% property value decline, €600m target, Income exemption limit €12,000,  
Property tax rate 0.26%

| <i>Decile</i> | <i>Percentage change by decile</i> | <i>Average gain/loss by decile (€ p.w.)</i> | <i>Average gain/loss by losers</i> | <i>Aggregate for €m change</i> | <i>Percentage who lose in each decile</i> |
|---------------|------------------------------------|---|------------------------------------|--------------------------------|---|
| 1             | 0.1                                | 0.39  | -7.52                              | 3.3                            | 7%  |
| 2             | -0.2                               | -0.81                                       | -4.92                              | -6.8                           | 28%                                       |
| 3             | -0.5                               | -2.74                                       | -4.79                              | -23.3                          | 61%                                       |
| 4             | -0.5                               | -3.34                                       | -6.26                              | -28.3                          | 57%                                       |
| 5             | -0.6                               | -4.67                                       | -6.93                              | -39.6                          | 69%                                       |
| 6             | -0.6                               | -5.69                                       | -7.24                              | -47.8                          | 79%                                       |
| 7             | -0.7                               | -7.43                                       | -9.35                              | -63.3                          | 80%                                       |
| 8             | -0.7                               | -7.54                                       | -9.33                              | -64.1                          | 81%                                       |
| 9             | -0.7                               | -8.53                                       | -9.88                              | -72.3                          | 86%                                       |
| 10            | -0.8                               | -12.43                                      | -13.86                             | -105.5                         | 90%                                       |
| All           | -0.6                               | -5.28                                       | -8.60                              | -447.7                         | 64%                                       |

Table 6.6: Property Tax based on Exact versus Crosstabulated Values

60% property value decline, €600m target, Income exemption limit €12,000,  
Property tax rate 0.26%

| <i>Decile</i> | <i>Percentage change by decile</i> | <i>Average gain/loss by decile (€ p.w.)</i> | <i>Average gain/loss by losers</i> | <i>Aggregate for €m change</i> | <i>Percentage who lose in each decile</i> |
|---------------|------------------------------------|---|------------------------------------|--------------------------------|---|
| 1             | -0.0                               | -0.03                                       | -2.86                              | -0.3                           | 3%  |
| 2             | -0.0                               | -0.09                                       | -2.43                              | -0.7                           | 11%                                       |
| 3             | -0.0                               | -0.10                                       | -2.44                              | -0.9                           | 21%                                       |
| 4             | -0.0                               | -0.15                                       | -2.64                              | -1.3                           | 25%                                       |
| 5             | -0.0                               | -0.15                                       | -2.78                              | -1.3                           | 31%                                       |
| 6             | 0.1                                | 0.92  | -3.37                              | 7.8                            | 26%                                       |
| 7             | 0.0                                | 0.06  | -3.99                              | 0.5                            | 36%                                       |
| 8             | -0.0                               | -0.30                                       | -4.13                              | -2.5                           | 37%                                       |
| 9             | -0.0                               | -0.23                                       | -3.54                              | -1.9                           | 39%                                       |
| 10            | 0.1                                | 1.71  | -5.38                              | 14.5                           | 36%                                       |
| All           | 0.0                                | 0.16  | -3.60                              | 13.9                           | 27%                                       |

## **6.4 Site market value**

Internationally, the three main bases for property taxes tend to be property values (or “capital improved values”), annual rental value and land value. Property value tends to be the most frequently used, with annual rental value the next most common approach. In a review of international approaches, McCluskey, Davis and Lim (2007b)) note that “[L]and value tends to be the least used. It is a conceptually sound system but with limited international application”. Furthermore, they point out that

“There is quite a noticeable trend for countries and jurisdictions (where they have a choice of tax basis) to move away from land value. Very good examples of this are to be found in Australia, New Zealand and South Africa”.

As a result, in assessing the choice of the appropriate base for the Northern Ireland property tax, McCluskey et al. come to the conclusion that

Overall, introducing a system of land value taxation to replace the current domestic and non-domestic systems would be difficult and not in line with international trends.

McCluskey, Lim and Davis (2007b)

A number of recent papers have stressed the advantages of site value taxation (Lyons, 2011, Smart Taxes Group, 2012). A question which naturally arises is why, if site value taxation has the advantages claimed for it, the system is so uncommon internationally? A number of explanations can be suggested. One factor is that in modern, developed economies most urban land has already been developed so that there are relatively few transactions in undeveloped land. As Lyons (2011) notes, there would be a risk of bias in using information only on those sites which are currently vacant. An alternative approach in these circumstances is to use information on transactions in residential property, and apply econometric techniques – together with some assumptions regarding relative building costs in different locations – to identify the implicit value of the sites. A difficulty here is that, however good the econometric analysis, the site value estimated in this way is quite opaque from the point of view of the taxpayer. Values observed in property market transactions provide a more transparent and understandable basis for a tax. A taxpayer can compare an assessed capital value of his or her property with observed market transactions, and use such information in an appeal process. This may

be of considerable importance in introducing a new tax, as taxpayer acceptance of the fairness of the assessments and the system must

A further difficulty with a site value tax is that its consequences in terms of the income distribution are not known. There is no data source which combines information on plot sizes or site values and the incomes of property owners. Thus, claims as to the progressivity or otherwise of a site value tax have to be regarded as unproven.

Lyons (2011) provides the best available estimates of the rates of site value tax to produce a given revenue yield. His analysis suggests that a tax of 2 per cent on site value, applied to a housing stock of 2 million, would raise some €1,250m.

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## **Appendix 1**

### **Terms of Reference for the Interdepartmental Expert Group on Property Tax**

The terms of reference for the expert Inter-Departmental Group are:

To consider the design of a property tax to be approved by Government to replace the Household Charge and that is equitable and is informed by previous work and international experience.

The property tax is to:

- Meet the immediate financial requirements of the EU/IMF programme;
- Provide a stable funding base for the local authority sector in the medium and longer terms incorporating an appropriate element of local authority responsibility subject to any national parameters;
- Ensure the maximum degree of fairness between and across both urban and rural areas
- Be collected centrally by the most cost efficient and effective means;
- Facilitate easy and/or phased payments by households;
- Be easily determined (e.g. on a self assessment basis), and having regard to the information currently available (or to be made available through registrations for the household charge) on residential property and/or house ownership details;

The Group is also to consider the appropriate arrangements for:

- A robust audit function; and
- Strong enforcement and penalty provisions for non-compliance

## Appendix 2

### Inter-Departmental Group on Property Tax

#### Specification of work for the ESRI

1. Undertake assessment and provide options for a residential property tax which would deliver a total yield of the following amounts:

- (1) €400m
- (2) €600m
- (3) €1,000m

[The foregoing options are requested for illustrative purposes to provide possible parameters for consideration and do not imply policy decisions as such.]

2. The tax should apply to all residential property owners rather than occupiers/tenants

3. In all cases the following properties should be excluded and regarded as exempt:

- all properties in State ownership and/or that of a local authority, HSE, Voluntary and Cooperative Housing Body, discretionary trust or a charity (registered as such with the Revenue Commissioners)
- properties subject to commercial rates and wholly used as a dwelling.

4. Subject to the exclusions set out above, in considering options to produce the possible yields at paragraph (1), the following should be considered

(a) The impact of a full or marginal waiver in respect of:

- i. all property owners with gross incomes of less than the following thresholds - €10,000, €12,000 and €18,300 (income to include social welfare income).
- ii. owners of principal private residences with gross incomes of less than the following thresholds - €10,000, €12,000 and €18,300 (income to include social welfare income).

(b) The impact of a reducing waiver in respect of all properties located in unfinished housing estates (as set out in the Local Government (Household Charge) Regulations 2012)

(c) the potential cost of deferment of payments for the above income thresholds until sale or transfer of the residential property .

5. In calculating the property tax, the following options should be assessed incorporating the aforementioned exclusions and waivers as individual alternatives:

- 1) suggested rates as a percentage of market value.
- 2) suggested rates based on floor area of the properties.
- 3) suggested rates based on residential property type e.g. detached, semi-detached, terraced, apartment.
- 4) a suggested matrix of charges based on market value, floor area and property type.
- 5) suggested rate as a percentage of site market value of the property only.
- 6) the foregoing options (1 to 4) including a minimum charge of €100 applying to:
  - (i) all except proposed exempt properties in paragraph 3
  - (ii) those in unfinished housing estates in paragraph 4(b) .

[The Group is interested in exploring different bases for assessment and liability which give the maximum possible amount of certainty to both owners and to the authorities in regard to the tax liabilities attaching to individual properties and which have low compliance and administrative costs and therefore, subject to further discussion with the ESRI as the work progresses, location may feature as a component element of the charging regime.]

#### 6. Other issues

(1) Explore the use of a limited number of bands (no more than used by Commission on Taxation) to substitute for exact values.