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What Role for Property Taxes in Ireland?

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What Role for Property Taxes in Ireland?

1. Introduction

What role could a property tax play in broadening the Irish tax base? Could a recurrent tax on immovable property provide greater stability than a system of stamp duties, while removing obstacles to mobility? What about the relationship between a property tax and ability to pay – should or could the bills facing those with valuable houses and little income be reduced or eliminated without making a property tax a quasi-income tax? These are among the questions explored in this paper, which provides a broad picture of the issues, illustrated by detailed microsimulation of the impact of specific forms of property tax.

Our analysis builds on the ESRI tax benefit model, SWITCH,¹, which works with data from the Central Statistics Office's Survey on Income and Living Conditions (EU-SILC) for 2005. The data drawn from the survey include information on house values, as assessed by the owner-occupiers. Cross-checks indicate that such information tends to be of good quality. (Callan, 1991). Of course, in implementing a property tax, the issue of achieving reliable valuations on which to base tax assessments is rather different. Approaches taken elsewhere to this valuation problem are reviewed at a later stage. But we focus initially on issues regarding the design of a tax, in the case where information on individual capital values for each house are available (as is the case in Northern Ireland). The Commission's report proposes that a property tax be introduced with tax liability depending on banded house values; the broad impact would be similar, but differences between the exact value and banded approaches would merit further study.

The appropriate design for a property tax depends in large measure on the rationale for property taxation: the "how" of property tax depends on the "why". In Section 2 we review the rationale for property taxation, along with previous Irish experience with property taxes, and some insights from international experience. Section 3 then

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¹ The acronym stands for Simulating Welfare and Income Tax CHanges.

deals with a series of issues about the design of a property tax for Ireland, providing a base for later development and analysis of policy options. Section 4 describes the data used in the paper, including data on self-assessed house values from owner-occupiers in the CSO's Survey on Income and Living Conditions. Section 5 provides results on the revenue and distributional impact of a property tax, using the SWITCH model, and flags issues regarding the implications for financial incentives to work. The main findings of the paper, along with pointers towards research issues for the future, are drawn together in the final section.

2. Rationale for property taxation

Heady (2009) listed a number of features of property taxes which make them a useful part of the overall tax base, and a feature of tax systems in most industrialised countries:

- property is immobile
- property taxes are hard to evade or avoid
- property is suitable as a local tax base
- property tax revenue can be used to reduce the burden of income taxation, and has fewer behavioural consequences than income taxes
- property taxes can offset distortions caused by favourable tax treatments of owner occupation which tend to cause overinvestment in housing
- property is a major component of wealth

All of these are relevant to the Irish situation. However, we will not attempt to deal with the issue of local taxation in this paper. We examine the potential for a national property tax. It may be desirable for this part of the tax base to come under local control, but this issue is left aside for the present.

OECD (2006) has stated that "Ireland has some of the most generous tax provisions for owner-occupied housing, largely because it is the only OECD country that allows a tax deduction for mortgage interest payments at the same time as not taxing property values, capital gains or imputed rent".

In this context, we would argue (along the lines set out in Callan, 1991) that the best direction is a property tax on property values approximating a tax on imputed rent, while retaining some element of mortgage interest relief. This is because the tax is principally aimed at deriving revenue from owner-occupation, which as OECD states, has a tax-favoured status. It may be appropriate to have some form of property tax for the rental sector, but it should not be assumed that this would have exactly the same form – or the same goals – as a property tax on the owner occupied sector.

2.1 Tax treatment of property in Ireland

A comprehensive overview of the fiscal treatment of property in Ireland has recently been provided by Ryan (2009). Here, instead, we focus on selected aspects of Irish experience with property related taxes.

Domestic rates were abolished in 1978. Rates were a highly unpopular tax, and it is worth considering what aspects of rates generated that unpopularity. Rates were a highly salient tax, payable in two lump sums (or moieties) each year. This contrasts with tax paid under PAYE, where the taxpayer is not required to make a specific payment. Rates were widely regarded as unfair. Properties had not been revalued for many years, so that discrepancies arose in relative valuations (e.g., as between older and new property).

The Residential Property Tax had both a property value exemption limit and an income exemption limit. These combined to result in tax which applied only to a small proportion of the population, and generated very limited revenue. Experience with this tax is of quite limited value when considering a much broader property tax. With a tax applicable only to about 5 per cent of households, a key priority must be identifying the relevant houses and owners. With a more general tax, the issues are rather different. A further consideration is that up to three-quarters of the revenue was raised from Dublin. However, this is not a necessary feature of a property tax, as will be seen in Section 5.

2.2 International experience

Table 1 below shows how property tax revenue as a share of total tax revenue has changed in Ireland between 1986 and 2006. In 1986, revenue from property taxes was

less than 4 per cent of total tax revenue. This was somewhat less than the EU and OECD averages, and substantially less than the share of 8 to 12 per cent found in Australia, Canada, the UK and the US. By 2006, revenue from property taxes in Ireland had risen to about 9 per cent of total revenue - putting Ireland into the group of countries in which property taxes had the most important role, supplying around 10 per cent of total revenue.

Table 1: Property Tax as a proportion of Total Tax Revenue

Country	1986	1996	2006	
EU15	4.2	5.7	5.6	_
OECD	4.5	5.1	4.8	
Australia	8.1	9.0	9.1	
Canada	9.4	10.5	10.1	
IRELAND	3.8	4.7	9.1	
UK	12.4	10.3	12.4	
US	10.9	10.9	11.1	

Of course, this pattern largely reflects the fact that in Ireland, stamp duties on house purchases provide the main source of property tax revenues. Revenue from such taxes rose sharply during the prolonged housing boom. Revenue from this source has declined sharply to much lower levels, as the number of transactions has fallen. Amounts payable in stamp duty were also reduced by the measures in Budget 2008 which reshaped the system from one with higher percentage taxes on the entire value above successive thresholds into a graduated tax.

A recurrent tax on residential property has two major advantages over a transactions based tax like stamp duty. First, a stamp duty provides a barrier to mobility, encouraging owner occupiers to stay in the same home. This works against efficient use of the housing stock, and is a barrier to mobility in the labour market. Second, as is evident in the Irish case, stamp duties are strongly influenced by the housing cycle, with larger revenues during a boom, and much smaller revenues during a downturn as at present. A recurrent tax on residential property helps to provide a more stable source of revenue.

While UK experience is often of value in exploring tax options for Ireland, the nature of the Council Tax, which had its origins in the Community Charge (commonly known as the poll tax) makes it of less value on this occasion. However, recent

Northern Ireland experience in moving from a system of domestic rates based on rental values to a system based on capital values is highly relevant. (Northern Ireland Department of Finance and Personnel, 2002, 2004, 2007, 2009)

3. Issues in the design of a property tax for Ireland

There are a number of key choices to be made in designing a recurrent tax on residential property. In this section we consider some of the main elements, and outline the choices made in the design of a property tax to be modelled in the Irish setting in the next section.

3.1 Tax Base

One key element is the base on which the tax is to be levied. Is it to be on;

- All property
- All residential property
- All owner occupied residential property

Given that rates already apply to commercial and industrial property, we take it that the property tax of interest in the Irish case is a tax on residential property. But should the tax apply only to owner-occupied residential property, or to all residential property, including the rented sector? In our view, as set out in Section 2, there is a strong argument for a property tax on owner-occupied property, proxying a tax on the imputed income from owner occupation. This helps to offset the very favourable tax treatment of owner occupied property in Ireland identified by OECD (2006) among others.

There may also be a role for a property tax on the rental sector, but here the rationale is rather different. While the imputed income from owner occupation is not monetized, and not taxed, there is income generated by the rental sector which is subject to tax. On the other hand, there have also been generous tax incentives for the rental sector, some of which are currently being phased out. A property tax in the rental sector might be designed to ensure a "back stop" so that tax breaks do not play such a large role in offsetting rental income for tax purposes. Property tax might be treated as an advance payment against income tax, for example.

3.2 Valuation

How should the relative tax burden borne by different properties be determined? Two main approaches are used, one focusing on capital market values and the other on rental values. In an environment where rates of owner occupation are close to 80 per cent, capital market values have a natural advantage in being more clearly visible and established for owner-occupied property.

How should properties be valued? Given that property taxes are common around the world, this issue has been faced in many different environments. Close to home, there is the recent example of the Rating Review process in Northern Ireland. (Northern Ireland Department of Finance and Personnel, 2002, 2004). Computer assisted mass appraisal combined the skills of valuers with regression models of house prices to allow for a revaluation of the housing stock within about 2 years. (See McCluskey *et al.*, 1997 and McCluskey et al., 2007). The broad approach of the regression models is to relate the observed price of a house to its characteristics (location, size, number of bedrooms etc.). Once this relationship is established, it is possible to predict with reasonable accuracy the value of a house once a small number of key characteristics are known. The process need not be purely mechanical: it is possible for valuers to make an adjustment to the initial estimate. Furthermore, the owner can appeal a valuation.

In Northern Ireland, about 700,000 properties had to be valued. Appeals were expected from around 100,000, but in fact only about 40,000 households appealed their valuation. About half of these were readily dealt with by a helpline which sorted out discrepancies over the information used in the assessment or clerical errors. Most of the remainder were dealt with either by an appeal to the District Valuer or to the Commissioner of Valuation. Only a small number were referred upwards to an Independent Valuation Tribunal. One factor which may have led to the low level of appeals was that rising house prices meant that owners were typically comparing the current house price with a valuation for a date somewhat earlier.

Can self-assessment play a role in valuing houses? Certainly it would seem possible to request basic information on a property from the owner, with systems of audit and

penalty that make honesty the best policy. Direct self-assessment of the value by the owner may, in some circumstances, also be practicable. But in current circumstances, there is great uncertainty about market values – with few transactions to guide owners in assessing their home values.

How often should revaluations be carried out? The international experience suggests that revaluations should be undertaken at least every 5 years. Some countries operate with more frequent revaluations, even every year. But in a periodic system, missing a revaluation tends to make it difficult to get back on track because the gains and, more especially, the losses, tend to be larger(Heady, 2009). Thus a robust revaluation schedule is an important element for a properly functioning property tax.

3.3 Tax rate

Tax rates on property in the US, where property taxes are local taxes, tend to be in the range of 1% to 3% (Smith, 2009). Of course, this is in a context where income taxes are a good deal lower than in most European countries. Here we focus on a much lower tax rate, geared so as to bring in a revenue of around €1,000m per annum.

3.4 Relationship to ability to pay

How should property tax be related to ability to pay? There are a number of possibilities. Low income individuals may be exempt from the tax, or have their property tax bill reduced. Alternatively, the tax bills of low income individuals, particularly the elderly, may be deferred, and rolled up against the eventual sale of the property. While there are merits to the deferral system, it is much less common, and in introducing a property tax it may be best to focus on how an income related rebate or waiver could be designed.

One key question here is whose income is to be measured. There will be households in which the owner has relatively low income, but there are also adult children present with higher incomes, so that there are sufficient resources in the household to pay the bill. In our analysis we focus on an income waiver which is related to the income of the owner and his or her spouse, but does not include the incomes of other household members. Potentially, a scheme which looked at wider household incomes could raise

more net revenue and/or afford greater protection to households with least resources. This is an area that could be studied in further research.

A further issue arises in the administration of an income related scheme. Ideally, for administrative efficiency, income or resources would be measured once, for example by the tax system, and this income measure would be used for several purposes e.g., the calculation of income tax, and the calculation of income-related relief from property tax. The report of the de Buitleir committee, however, confirmed the widespread belief that the operation of the student grant system tended to favour those students whose parents were self-employed or farmers. This was because grants were determined on the basis of a single year of income, and the self-employed including farmers were better placed to ensure that their incomes fell below critical cut-offs for entitlement to grants.

A similar scenario may be of relevance when it comes to property tax reliefs. If taxable income is not a good measure of long-term resources for those who are self-employed, then there may be a case for having income-related relief administered in a different way, which is better able to take account of these long-term resources. Thus, there might be a Property Tax Benefit (like the UK's Council Tax Benefit) for which individuals would have to apply under the social welfare code.

4. Data and Modelling Framework

In this section we outline the tools used for this analysis of property tax options. The starting point is SWITCH, the ESRI tax-benefit model, which analyses the social welfare entitlements and income tax liabilities of a nationally representative sample of households. The database for SWITCH comes from the CSO's Survey of Income and Living Conditions (EU SILC), which also contains direct data on owners' estimates of residential property values, and further data on housing characteristics. For this paper, these data on housing values were added to the SWITCH database, so that the model could be extended to simulate the impact of introducing a property tax.

4.1 SWITCH, the ESRI tax-benefit model

When considering the potential impact of tax changes, calculations are often undertaken for just a small number of illustrative families. This approach has severe limitations. For example, less than one family in 20 falls into the category of "oneearner couple with 2 children" which attracts so much attention at budget time. Furthermore families within this category differ in terms of income, housing tenure, and other characteristics that affect their tax-benefit position. More fundamentally, analysis of hypothetical families - no matter how well chosen - simply cannot give an overall picture of the impact of a policy change on incomes and work incentives. For this reason, in many countries policy changes are assessed using tax-benefit models which are based on large-scale nationally representative samples of households. This ensures that the models represent as fully as possible the great diversity of household circumstances relevant to tax and social welfare. Several countries including the UK and the US have models which are maintained and used by official departments or agencies, as well as models developed and used in the academic sector (e.g., the Institute for Fiscal Studies, the Tax Policy Center in Washington and the Microsimulation Unit at the University of Essex). In Ireland, the ESRI has developed a microsimulation model of the Irish tax and benefit systems, SWITCH (Simulating Welfare and Income Tax CHanges).

The current SWITCH database uses data from the EU's Survey on Income and Living Conditions (EU SILC) for the year 2005. The survey contains detailed information on more than 6,000 households including about 15,000 individuals. These data include

detailed information on household size and composition, labour market participation, incomes from work and occupational pensions, and from receipts of social welfare payments.. The SWITCH database is adjusted from year to year to allow for key changes in incomes and population structure as forecast for the next budgetary year. Changes in social welfare rates, income tax rates, bands and allowances, and the structure of employee PRSI are taken into account within the model. Using these data the model has been developed to simulate the rules of the welfare and tax systems so as to allow it to predict the tax liabilities and welfare entitlements of respondents under the existing tax/welfare rules and under alternative reforms.

The capabilities of the model include:

- Estimation of the net budgetary cost of packages of tax and welfare changes.
 Alternative reform packages with the same budgetary cost can therefore be constructed.
- Estimation of the pattern of gains and losses from a policy change. The
 numbers of families gaining and losing and the size of their gains and losses
 can be estimated, and the distribution of gains and losses across family types
 and income levels can be explored.
- Estimation of the impact of policy changes on effective marginal tax rates.

The model has now been extended to allow for the modelling of various property tax options. This required the use of data contained in the survey on house values, described in the next section, and the establishment of a set of rules for modelling property tax liability, described in Section 4.4.

4.2 Data Issues

EU SILC contains information on the value of the house as assessed by the owner. In addition, respondents are asked for the insured value of the house and the insured value of house and contents combined. In the EU SILC sample there are nearly 5,000 households who own their home. Of these nearly 70 per cent own the house outright while the remaining 30 percent have an outstanding mortgage. About 4,500 of the 5,000 home-owners provide an estimated house value. For the remaining 500 we must therefore estimate a house value based on the information available in the dataset.

Our strategy in arriving at an alternative house value estimate is as follows. First, we examine information on the insured value of the house (or house and contents if the insured house value is not provided). Households may sometimes be unsure of the market value of their home but are likely to know the value they have insured their property for with more certainty. The insured value is therefore useful in cases where the actual house value is not provided or appears incorrect. Typically, however, the insured value is somewhat lower than the actual market value of the home. In order to take account of this, we applied a "correction factor" derived as follows. For those who provided *both* a house value estimate and the insured value, we calculated the average ratio of the estimated house value to the insured house value. We then applied this ratio to the insured house value, where this was the only information available.

Cases existed in the dataset that were missing both the house value and the two insured values. In these cases information on many characteristics relevant to house value were still available. We estimated the relationship between house values and these characteristics for households where full information was available. (This hedonic regression approach has been described and applied by Conniffe and Duffy(1999)The characteristics used included:

- location
- number of rooms
- house type (detached, semi-detached etc)
- neighbourhood traits (for example whether or not crime was a problem, pollution etc.)

Then we used this relationship to predict house value for cases where only the characteristics, and not the value, were known. This technique is known in the literature as hedonic regression. As a final check, we also examined outliers in the dataset focussing on very low and very high house values. This revealed a small number of inconsistencies which were resolved on a case-by-case basis.

Statistics from the Department of the Environment indicate a stock of dwellings of 1.7m at the end of 2005. The standardised average house price at that time (from the Permanent TSB-ESRI series) was close to €288,000. Given an owner-occupancy rate of about 77 per cent, this suggests that the total value of the owner-occupied housing stock was in the region of €3,700m. Our estimates, based on the data in the CSO's

Survey on Income and Living Conditions, suggest a figure in the region of €3,500m. This suggests that the SILC data provide a reasonable approximation of the overall tax base, but with the great advantage of considerable detail on the incomes, composition and other characteristics of households. Our work builds on this to examine the implications of alternative forms of property tax for this nationally representative sample of households.

Since 2005 house prices first rose to a peak in late 2006 or early 2007, and then fell sharply, by between 20 and 30 per cent according the latest estimates (Duffy, 2009). While there is some divergence between alternative estimates of house price trends, it is clear that a major downward adjustment is required in order to assess the potential role for property tax under new housing market conditions. We have taken a very conservative approach, aimed at providing not just for falls to date in the price of housing but some potential further falls. We do so in order to examine how property tax might look in a long term context, rather than simply in the current or next budgetary year. The "discount factor" applied to house prices in the calculations in the present paper implies a fall of one-third in house prices from their 2005 level (and therefore somewhat greater relative to peak values in early 2007). This is by no means a forecast, but it is an attempt to arrive at a somewhat conservative estimate of the potential revenue from a property tax. The introduction of property tax might itself lead to some further downward pressure on house prices, though evidence on such capitalization effects is mixed.

4.3 Modelling property taxes and income-related rebates

In our modelling work we have allowed for a number of options with respect to the structure of a property tax, and with respect to income-related rebates or waivers. While our empirical work to date concentrates on a subset of these possibilities, it is important to document the options currently available in the context of possible future work for the Commission.

We allow for a property tax to be calculated

- as a simple percentage of the estimated value of the residential property
- as a specific amount for properties with values lying within up to 10 specified bands

In the present paper, we focus on the former option, applying a specified percentage to an exact or "discrete" property value. This is the most common approach, and appears to have most to recommend it. However, it may be that such a system is not attainable in the short-term, while a banded system could be implemented more quickly. The SWITCH model is able to simulate the banded system, so that its impact can be examined and compared not only with the status quo (no property tax) but also with a full system based on discrete property values.

Turning to income-related exemptions, waivers and rebates, we allow for a number of key parameters to be varied. The first of these is an *income exemption limit for property tax*. This is an income-cut off, below which no property tax would be payable. We allow for this to be a simple cut-off in terms of disposable income (income after taxes, PRSI, levies and including social welfare benefits). While some benefits and taxes operate in terms of gross income, disposable income seems a more appropriate criterion here – as with the Family Income Supplement in Ireland, or Housing Benefit in the UK, the aim is to ensure that income after expenses does not fall below a certain floor.

The UK's Council Tax Benefit is based around the idea of paying a full rebate for those individuals or families whose incomes fall below a "needs amount" which varies depending on the characteristics of the family. Factors taken into account include the number and ages of children, but also the category of welfare recipient (e.g., old age, persons with a disability, lone parent). This creates quite an elaborate menu of income support, differentiated by category of recipient. In our initial work we have taken a simpler approach. We adjust incomes to take account of family size and composition, using an adult equivalence scale which approximates that used in the Irish welfare system. Thus, the income-cut off used in our analysis is based around income adjusted for family size and composition, or equivalised income as it is often termed. It is equivalised income which is also used by the EU to identify those "at risk of poverty".

If full relief is provided for (equivalised) incomes below the specified cut-off, and no benefit for those with incomes above the cut-off, then benefit withdrawal would take place in an "all or nothing" fashion. This would create a sharp "poverty trap", where a

small increase in earnings or other income would give rise to a substantial fall in disposable income. Most systems would allow for a gradual reduction in benefit (or property tax rebate). We allow for a *property tax marginal relief rate*, which could also be termed a rebate/benefit withdrawal rate.

The higher the income exemption limit, and the lower the rebate withdrawal rate/marginal relief rate, the more extensive is the protection afforded to those on low incomes. Increasing the exemption limit, and/or lowering the property tax marginal relief rate means that individuals and families who are further up the income scale obtain at least some benefit from the income-related reductions in property tax. The trade-off facing the government is that this also reduces the net revenue from the property tax. Results in the next section will give some initial exploration of this issue. We set the property tax marginal relief rate at 20 per cent (the value used in the UK's Council Tax Benefit) and explore the impact of income exemption limits at €12,000 per annum and €15,000 per annum.

5. Impact of a property tax

We begin our exploration of the potential for a property tax with a very simple scheme: property tax is calculated as a given percentage of the value of each owner-occupied property. We examine how much revenue this would raise, and its impact at low, medium and high income levels. We then examine how the revenue and distributional impacts are altered by the addition of provisions for a waiver of property tax – either full or partial – for those on low incomes. The geographic distribution of property tax liabilities is then outlined, in light of earlier experience with the Residential Property Tax which was heavily concentrated on the Dublin area. Finally, we consider the implications of the income-related reliefs for the financial incentive to work. The main findings are drawn together in the concluding section.

5.1 Simple Property Tax: Revenue and Distributional Impact

We examine the impact of a simple proportionate tax on all owner-occupied residential property as a starting point. At this stage, we make no provision for reliefs linked to low income, so that we can examine the potential liability across the full distribution of income. We find that a tax rate of 0.4 per cent of the value of the property would raise €1,100m per annum. The average amount of tax for those affected would be about €50 per annum. For comparisons with monthly salaries and mortgage payments, we may note that this equates to about €80 per month; in weekly terms the average tax payment would be just over €18. These averages are based on the mean value of the house and the tax. A substantial majority of those paying the tax would pay less than this.

Where does this tax take come from in terms of the distribution of income? Table 2 divides the population into deciles – tenths of the population with successively higher incomes, from the lowest to the highest. The income criterion used is income adjusted for needs, as measured by family size and composition. The equivalence scale used allows for the fact that there are economies of scale for adults living together, and that the needs of children are somewhat lower than those of adults. The precise scale allows 1 unit for the first adult in the family, 0.66 for a second adult and 0.33 for children. This is the "national scale" used in CSO analyses of poverty risks (e.g.,

CSO, 2008).² In the present analyses, we focus on the narrow family unit or so called "tax unit" – an individual or couple, together with dependant children.

Table 2: Distributional impact of a simple property tax (0.4% of capital value of owner-occupied property)

				% Change in Income	Average loss for
	Adjusted	Net	% of	for Income	those
Decile	Income		households	Group	affected
	More	Less			
	than	Than			$\in p \ w$
Lowest		204	10	-1.0	13.50
2	204	263	10	-1.4	11.70
3	263	325	10	-1.9	13.86
4	325	396	10	-1.2	16.75
5	396	449	10	-1.0	15.56
6	449	519	10	-1.3	15.61
7	519	605	10	-1.3	19.54
8	605	711	10	-1.6	21.58
9	711	889	10	-1.2	20.44
Highest	889		10	-1.1	25.66
Total			100	-1.3	18.31

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 $^{^{\}rm 2}$ Income per adult equivalent is often referred to as equivalised income.

5.2 Property Tax with an Income Exemption Limit and Marginal Relief

In order to take account of ability to pay, we examine a property tax which provides for a full rebate to those below a specified income limit, and a partial rebate for those somewhat above that limit. The broad structure has been outlined above. We look first at an income limit which is set at the level of the State Contributory Pension, approximately €230 per week or €12,000 per annum. The rebate is withdrawn at the rate of 20 cent in the euro on income above the limit – thus the "rebate withdrawal rate" or "marginal relief rate" is 20 per cent.

Table 3 summarises the broad impact of this scheme. Losses for those in the bottom decile (the lowest 10 per cent of incomes) are eliminated, and losses in the second and third deciles are substantially reduced. The average bill for those affected is close to €6 per week in the second decile and under €9 per week in the third decile, compared with figures of €12 and €14 per week under a simple property tax.

Table 3: Distributional impact of a property tax with an income exemption limit and marginal relief

D 11	Adjusted	Net	% of	% Change	Average loss for those
Decile	Income		households	in Income	affected
	More	Less			
	than	Than			$\in p \ w$
Lowest		204	10	0	0
2	204	263	10	-0.3	5.73
3	263	325	10	-1.0	8.68
4	325	396	10	-1.1	15.59
5	396	449	10	-1.0	15.42
6	449	519	10	-1.2	15.31
7	519	605	10	-1.2	19.30
8	605	711	10	-1.5	20.49
9	711	889	10	-1.2	20.44
Highest	889		10	-1.1	25.66
Total			100	-1.1	17.71

Note: Tax rate is 0.4% of property value; income exemption limit is €12,000 per annum; and marginal relief rate is 20%.

Under the same structure, an increase in the income exemption limit to €15,000 per annum – about one quarter higher than the highest social welfare payment would virtually eliminate losses in the second decile, and substantially reduce the number of losses in the third decile.

Table 4: Distributional impact of a property tax with an income exemption limit and marginal relief

					Average loss for
	Adjusted	Net	% of	% Change	those
Decile	Income		households	in Income	affected
	More	Less			
	than	Than			€p w
Lowest		204	10	0	0
2	204	263	10	0	7.56
3	263	325	10	-0.2	6.27
4	325	396	10	-1.0	14.16
5	396	449	10	-1.0	15.24
6	449	519	10	-1.2	15.17
7	519	605	10	-1.2	19.26
8	605	711	10	-1.5	20.43
9	711	889	10	-1.2	20.44
Highest	889		10	-1.1	25.66
Total			100	-1.0	18.78

Note: Tax rate is 0.4% of property value; income exemption limit is $\le 12,000$ per annum; and marginal relief rate is 20%.

How is overall revenue affected by such income-related reductions to property tax liability? Table 5 shows that while revenue is reduced, these schemes retain between 80 and 90 per cent of the revenue of a simple property tax. Thus it is possible to have a property tax structure which raises substantial revenue, while providing protection for those on low incomes.

Table 5: Revenue impact of alternative waivers and rebates for property tax

	Income exemption lim	uit	
	(disposable income annum)	per Rebate withdrawal rate (%)	Revenue €m per annum
Simple property tax	0	n.a.	1,101
Property tax with			
income exemption limit and marginal relief Property tax with	€12,000	20%	973
income exemption limit and marginal relief	€15,000	20%	906

Note: A tax rate of 0.4% is applied in all cases

Regional distribution

What about the regional distribution of revenue from property tax? A combination of factors led to the former Residential Property Tax raising close to three quarters of its revenue from the Dublin area. How would a property tax of the type examined here

compare? Table 6 shows how the share of revenue raised under a property tax (with a rate of 0.4 per cent and an income cut off of \bigcirc 2,000) varies across regions, and, for comparison, the shares of the regions in population and in income.

Table 6: Regional shares of Population, Income and Property Tax

Region	Households	Disposable income	Property Tax Revenue
Border	9	7	6
Midland	5	4	3
West	8	6	6
Dublin	36	44	52
Mid-East	9	9	10
Mid-West	7	7	5
South-East	10	7	6
South-West	16	14	12
Total	100	100	100

Dublin accounts for a higher share of the yield from property tax than its share in the population of households. However, Dublin also has a higher share of disposable income, indicating a higher than average income. Given the progressivity of the income tax code, the share of Dublin in the gross income would be higher than 44 per cent, and its share in the revenue from income tax would be higher again. Thus, while Dublin's share in the property tax is above its share in the population, it is not so far above its share in income or income tax – and a long way below the share it contributed in the narrower Residential Property tax.

5.3 Impact on financial incentives to work

If, because of a low income waiver, property tax is not payable at a low income, and is payable in full at a higher income, then there is an implicit tax rate on income in moving from the lower to the higher level. This is most clear-cut in the case of those who are in the "marginal relief" zone, where the amount of a property tax rebate is reduced by a given percentage for each extra euro of income. But those with incomes below the exemption limit would also face an extra effective tax rate on earnings (over and above any income tax or PRSI liabilities) in moving from an income below that limit to one in the marginal relief zone or to an income at which full property tax would be paid.

Some examples may help to clarify the nature of the impact on financial incentives to work. First, consider the position of a low income individual benefiting from a partial waiver of property tax. He or she will face the usual deductions from any additional earnings − income tax, PRSI and levies − but will, in addition, find his or her disposable income reduced by a further 20 cent in the euro of disposable income. Thus, if facing the standard rate of tax of 20 per cent and PRSI/levies of 8 per cent, extra earnings of €100 would translate into an increase in disposable income of €72 for someone not receiving a property tax rebate. But for someone in receipt of a rebate, there would be a further reduction of €14.40 (20 per cent of €72). This would leave the net gain at €57.60. So the effective tax rate on additional earnings would rise from 28 per cent to 42 per cent for an individual in receipt of the property tax rebate. Individuals in receipt of a full rebate would also see their work incentives affected if the increased income would mean that their property tax rebate would be reduced or eliminated.

Impacts on the financial incentive to work would not, however, be limited to those actually in receipt of marginal relief/partial rebates. The balance between income in employment and income out of employment would also be affected. For example, a person moving from very low income, with a full rebate of property tax, to a job at low earnings could find that the full property tax bill would become payable. This aspect of the financial incentive to work is commonly measured by replacement rates, which estimate what proportion of disposable income when in work is retained or "replaced", when out of work.

Estimates from the SWITCH model suggest that an income exemption limit of €12,000 per annum – corresponding roughly to the old age contributory pension rate of €230 per week - would mean that full rebates would apply to approximately 125,000 households. Provision for "marginal relief" or a sliding scale of rebates, with the rebate being reduced by 20 cent for every euro of disposable income, would lead to partial rebates for a further 100,000 households. If the property tax income exemption limit were set instead at €15,000 per annum, then full relief from property tax would be afforded on income grounds to approximately 235,000 households. A further 45,000 households would receive partial relief from property tax, if the withdrawal rate or marginal relief rate were set at 20 per cent.

How does this scale of relief compare with the waivers in place in Northern Ireland? A precise comparison is not possible, because the Northern Ireland property tax applies to all residential property, owner occupied and rented. For reasons explained earlier (principally related to the unavailability of data on the capital values of rental accommodation in the Survey on Income and Living Conditions), here we analyse a property tax which applies only to the owner-occupied sector. In Northern Ireland, about 20 per cent of the population have their property tax bill paid under the housing benefit scheme. A further significant proportion receives rebates under the low income relief scheme. Under the schemes examined here, an income limit of €12,000 per annum would imply that about 8 per cent of owner-occupiers would obtain full relief from property tax. A higher limit of €15,000 would imply that almost double this proportion would benefit from full relief – 15 per cent of owner occupiers would have a zero liability. A very substantial proportion of those in local authority tenancies would also be likely to qualify for income-related relief, if, as in Northern Ireland, the tax were applicable to the rental sector. This suggests that the parameters used to explore income related reliefs are operating on a broadly similar proportion of the population as in Northern Ireland. A more precise comparison would be of interest, and is one of the areas for further research.

In our view, one of the key areas for further research is to explore the impact of alternative structures of property tax waiver and marginal relief on financial incentives to work. By this we mean not only the impact on marginal effective tax rates, but also the impact on replacement rates which are of greater relevance to the most important labour supply decisions, those affecting participation and the intensity of job search. More can be done in this area using the SWITCH model, which has the capacity to analyse such issues; but time did not permit the inclusion of such analyses in the current draft.

6. Summary and conclusions

Key findings from our analysis of a property tax for Ireland include the following:

- A property tax at a rate of 0.4 per cent of property value can raise substantial revenue, of the order of €l billion per annum
- An income exemption limit and marginal relief can ensure that there are few losses, if any, among those on the lowest incomes (the lowest 20 to 30 per cent

- While the provision of income-related reliefs involves some loss of revenue, about 80 to 90 per cent of the revenue which would be generated by a simple property tax could still be retained.
- There are significant implications for financial incentives to work which require further study.

There is potentially an important role for a property tax in a country such as Ireland, where the tax system is particularly favourable to owner occupation. A property tax could raise substantial revenue, and income-related reliefs could ensure that losses among those with the lowest incomes were small in scale.

As discussed in Section 2, the introduction of a recurrent tax on property could be part of a package involving the reduction or elimination of the stamp duty tax on house purchases. While such a shift would have the attraction of reducing barriers to mobility, by reducing on eliminating a transactions tax, there would also be significant transitional issues to be dealt with. For example, an individual who had purchase a house in the last year or two would have paid substantial taxes under the "old" transactions-based system, and now face substantial ongoing taxes under the "new" system of recurrent tax on property. How might this transitional issue be dealt with?

One possibility would be to provide some form of credit in relation to stamp duty paid on houses purchased in the recent past. This would provide some relief for those who had purchased, and paid stamp duty, at the top of the boom, with the full property tax levied on those who purchased at an early stage, who have benefited most from the rise in capital values. For example, houses purchased more than 10 years ago might be subject to the full property tax. For houses purchased in the past 10 years, a credit might be calculated depending on the amount of stamp duty paid e.g., 10 per cent of the stamp duty would count as a credit against property tax for the 10 years after purchase. These figures and structure are purely illustrative – they serve to show how a scheme that deals with the issue of transitions could be developed, but there are of course many other ways in which this could be done. It is not essential that fixed

period like 10 years be chosen – other formulae might take account of the amount of stamp duty actually paid and the time lag since purchase in different ways.

Bibliography

- CALLAN, T., 1991. *Property Tax: Principles and Policy Options*, Dublin: The Economic and Social Research Institute, Policy Research Series Paper No. 12.
- CLARK, T., C. GILES and J. HALL, 1999. *Does Council Tax Benefit Work?*, London: Institute for Fiscal Studies.
- CSO, 2008. Survey on Income and Living Conditions (SILC) in Ireland, Cork: Central Statistics Office.
- CONNIFFE, D. and D. DUFFY, 1999. "Irish House Price Indices: Methodological Issues" *Economic and Social Review*, Vol.30, No.4, October 1999.
- DUFFY, D., 2009. "Measuring House Prices in Ireland", in A. Barrett, I. Kearney and J. Goggin *Quarterly Economic Commentary*, Spring 2009, pp. 18-21.
- HEADY, C., 2009. "Review of International Experience", paper presented to Foundation for Fiscal Studies Annual Conference on 'The Fiscal Treatment of Property', May.
- JOHANSSON, A., C. HEADY, J. ARNOLD, B. BRYS, L. VARTIA, 2008. "Taxation and Economic Growth", OECD Economics Department Working Papers, No. 620, OECD publishing © OECD. doi: 10.1787/241216205486
- McCLUSKEY, W.J.; DEDDIS, W.; MANNIS, A.; McBURNEY, D. and BORST, R. (1997), Interactive Application of Computer Assisted Mass Appraisal and Geographic Information Systems, *Journal of Property Valuation & Investment*, Vol. 15 No. 5, pp 448-465.
- McCLUSKEY, W.J., PLIMMER, F. and CONNELLAN, O. (1998), Ad Valorem Property Tax: Issues of Fairness and Equity, *Assessment Journal*, May, pp 47-55.
- McCLUSKEY, W.J., (1998), Property Tax: Empirical Evidence on its Relative Importance, *Journal of Property Tax Assessment & Administration*, Vol. 3, No. 2, pp 47-58.
- McCLUSKEY, W.J., DAVIS, P and LIM, L.C. (2007), Domestic Rate Reform in Northern Ireland: A Critical review of Policy Options, *Environment and Planning: Government and Policy*, Vol. 25, pp. 131-149.

- McCLUSKEY, W.J. and ADAIR, A. (1997), *Computer Assisted Mass Appraisal Systems*, Gower, Avebury, London.
- McCLUSKEY, W.J. (ed), (1999), *Property Tax: An International Comparative Review*, Ashgate Publishing Limited, Aldershot, England, pp. 1-458.
- MAYOR, K., S. LYONS, D. DUFFY, R. TOL (2008) "A Hedonic Analysis of the Value of Rail Transport in the Greater Dublin Area" ESRI Working Paper 264
- NORTHERN IRELAND DEPARTMENT OF FINANCE AND PERSONNEL, 2002.

 *Review of Rating Policy: A Consultation Paper, Bangor: Department of Finance and Personnel Rating Division.
- NORTHERN IRELAND DEPARTMENT OF FINANCE AND PERSONNEL, 2004.

 Reform of the Domestic Rating System in Northern Ireland: Policy Paper A

 Fairer Share Bangor: Department of Finance and Personnel Rating Division.
- NORTHERN IRELAND DEPARTMENT OF FINANCE AND PERSONNEL, 2007.

 Reform of the Domestic Rating System in Northern Ireland: A Consultation

 Report, . Bangor: Department of Finance and Personnel Rating Division.
- NORTHERN IRELAND DEPARTMENT OF FINANCE AND PERSONNEL, 2009.

 *Review of Domestic Rating: A Consultation Report, Bangor: Department of Finance and Personnel Rating Division.
- OECD, 2006. OECD Economic Surveys: Ireland, Paris: OECD
- POTERBA, J., 2009, forthcoming. "The Challenge of Tax Reform and Expanding the Tax Base", ESRI Geary Lecture, Dublin: The Economic and Social Research Institute.
- RYAN, P., 2009. "The Fiscal Treatment of Property in Ireland". Presentation at The Fiscal Treatment of Property, Dublin: Foundation for Fiscal Studies.
- SMITH, D., 2009. "Taxation of residential property: The US experience".

 Presentation at The Fiscal Treatment of Property, Dublin: Foundation for Fiscal Studies.

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