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Recurrent property taxes and house price risks

Martin O'Brien, David Staunton and Michael Wosser
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Recurrent property taxes form part of the tax system in most advanced economies. In this *Letter* we examine whether these taxes have broader benefits in terms of reducing down-side risk to house prices, and the volatility of potential house price outcomes overall. The results suggest that such benefits do exist. Combined with the steadiness of these tax revenues through the economic cycle, fiscal authorities could benefit from appropriately calibrated recurrent property taxes while also contributing to wider economic and financial stability.

1. Introduction

Recurrent property taxes, such as the Local Property Tax, Residential Zoned Land Tax or Commercial Rates in Ireland, are part of the tax system in most advanced economies. The literature on recurrent property taxes has generally found these measures to be both growth enhancing and progressive ([O'Connor et al. 2016](#)). This *Letter* points to the presence of an additional benefit – that recurrent property taxes can reduce the volatility of house prices, primarily by reducing down-side risk. The benefits of housing market stability for the economy and wider financial stability are well appreciated given the experience of Ireland and many other countries, where real estate crises have in the past played a central role in damaging financial crises ([Cassidy and Hallissey, 2016](#)). Borrower-based macroprudential policies, such as the mortgage measures in Ireland, have increased in use since the Global Financial Crisis and play a significant role in promoting housing market stability by reducing the possibility of credit-house price spirals. Recurrent property taxes may complement macroprudential policy by further minimising down-side risk and house price volatility overall.

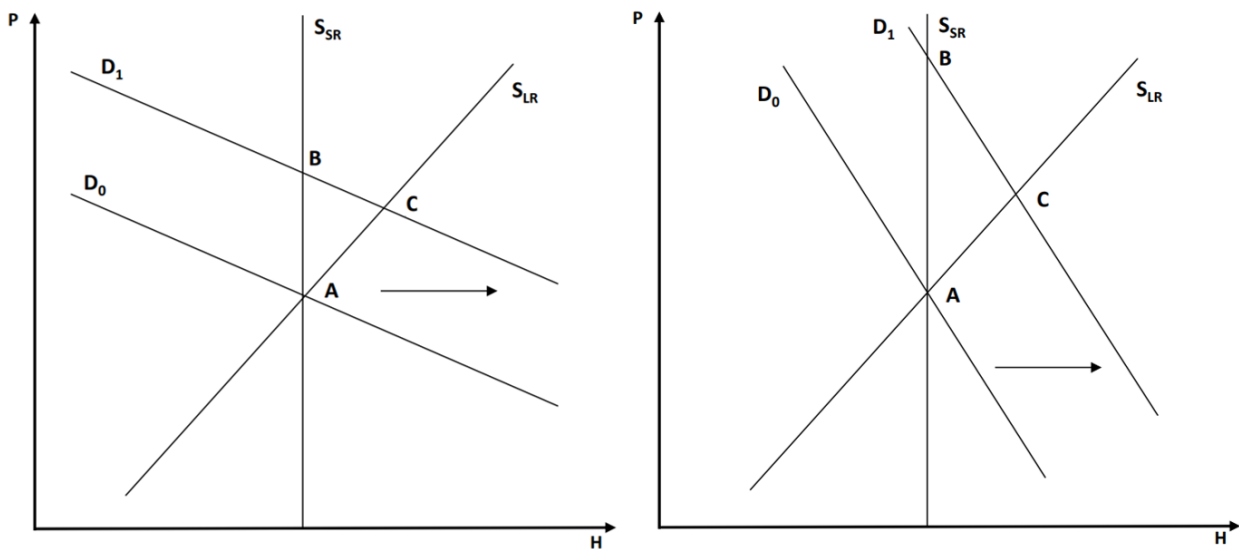
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The economic intuition linking the incidence of property tax and house price volatility operates through the user cost of capital for housing and the sensitivity of demand for property purchase. The user cost of capital approach considers the costs of property ownership relative to the costs of renting, with the tax a property owner has to pay being one of the relevant factors.² All other things being equal, a higher incidence of property tax reduces the relative benefit, and hence the demand for property ownership relative to renting. People become more indifferent between the choice to purchase or rent, making the demand for property ownership more elastic, and the demand curve for property purchase flatter. With a flatter demand curve, positive (negative) developments which could lead to an increase (decrease) in incomes, ultimately results in smaller changes in property prices compared to instances where the demand curve is steeper. A steeper demand curve arises where the benefit of property ownership relative to renting is higher, which in turn could arise where the tax burden related to property ownership is relatively low (Chart 1). Theoretical and empirical literature in the area typically highlights that demand for property purchase, and hence property prices are less responsive to positive/negative shocks to economic conditions in markets with higher incidence of recurrent property tax ([Van den Noord, 2005](#); [Poghosyan, 2016](#)).

CHART 1: The response of house prices to demand shocks depending on the tax treatment of property

Panel I: Less generous tax treatment of housing

Panel II: More generous tax treatment of housing



Source: [Poghosyan \(2016\)](#).

Note: S_{SR} is the short-run supply curve for housing. S_{LR} is the long-run supply curve for housing. D₀ is the original demand curve for property purchase. D₁ is the demand curve for property purchase after a positive economic shock. The size of the area between A (the original price point), B (the short-run price point) and C (the long-run-price point) is equivalent to the overall variability of house prices. The chart shows how that area is smaller for markets with less generous tax treatment on property ownership.

² Further background on the user cost of capital for housing can be found in [Browne et al \(2013\)](#).

We start our analysis by positioning the Irish experience of recurrent property tax in a European context.³ Following that, we build on the House Prices at Risk (HPaR) model, first discussed in the Central Bank Financial Stability Review 2020:II, to examine the potential role of recurrent property taxes in promoting more stable house prices.⁴ Finally, we look at the degree of variability in recurrent property tax revenue through the economic cycle.

A number of findings emerge. First, the importance of recurrent property taxes in Ireland's overall tax system is relatively low compared with other European countries. Second, a higher incidence of recurrent property taxes is associated with lower downside risk to property prices and a reduction in the volatility of potential house price outcomes overall. Finally, recurrent property taxes, as they are typically designed, are a relatively acyclical tax category. As a result they can provide governments with a stable revenue source that is less likely to be affected by a deterioration in economic conditions and, in turn, may also have a less distortionary impact on economic activity than other taxes.

The *Letter* proceeds as follows: Section 2 discusses the structure of property taxes and their prevalence across our sample of European countries; Section 3 provides the analytical results from the HPaR model and an assessment of the cyclicity of the main tax categories across countries; Section 4 discusses the implications of our findings and concludes.

2. The relative role of property taxes across countries

There are two main forms of property taxes - transaction based and recurrent. Transaction-based property taxes are levied when a property is transferred from one party to another. This can take the form of VAT or stamp duty at the point of purchase, and capital gains tax (CGT) or income/inheritance tax at the point of sale or bequest. Taxes of this form are present in most OECD countries, but exemptions are commonly available. Examples include CGT exemptions on the sale of main residences and increased tax-free limits on transfers or bequests to family members ([Prammer, 2020](#), [Kakoulidou and Roantree, 2021](#)). Since this category of property taxes relies on transaction levels and prices that can vary significantly

³ Our sources for the cross-country tax data are the [OECD Revenue Statistics](#) series and the [European Commission National Tax List data](#). For recurrent property tax we focus on tax receipts levied on, at least, residential property owned by households or firms. In some countries in our sample, unlike Ireland, the tax code does not differentiate between property assets used for residential or commercial purpose.

⁴ See [Box C: House prices at Risk, Financial Stability Review 2020:II](#).

over time, they typically represent a less reliable source of tax revenue for governments and can exacerbate rather than dampen economic fluctuations.⁵

Recurrent property taxes, in contrast, are levied regularly on a selected category of properties. They are present in most OECD countries but account for differing degrees of the total revenue across countries. Ireland’s overall tax revenue as a share of national income is close to the advanced economy average considered in this *Letter*. However, revenue from recurrent property tax as a proportion of national income is significantly lower in Ireland than average, and lower than countries with similar share of overall tax in national income (Chart 2).⁶

CHART 2: Total tax revenue and recurrent property tax revenues compared across countries, 2020



Source: OECD, EC, CSO, and author calculations

Note: GNI* used for IE instead of GDP.

⁵ See [Addison Smyth and McQuinn \(2016\)](#) for a discussion of Ireland’s experience in this regard.

⁶ It should be noted that Ireland has seen unprecedented growth in corporation tax revenues since 2015. Had corporation tax receipts grown at rates similar to pre-2015 norms, the proportion of recurrent property tax in total tax would likely have been higher.

Recurrent property taxes in advanced economies vary significantly in terms of the stock of eligible properties, the tax rate, and the method of valuation and revaluation. Most countries tax both residential and commercial properties but some, such as Italy, exempt the primary residence from the tax. It is most common for the land and buildings to be taxed together but some countries have a separate system for the taxation of land e.g. Denmark ([Blöchliger, 2015](#)).

Most taxes are levied based on economic activity that has already occurred. VAT, for example, is charged when a good or service is purchased, and income tax is paid after or at the same time as the income is received. Recurrent property taxes differ in that since no transaction has taken place, the true market value of the property must be estimated in order to determine the amount of tax to be paid. Most countries rely on comparing properties to recent sales prices, but the frequency with which this is performed varies greatly. In the sample of countries we consider, the majority have revaluation periods ranging from 3 to 10 years. Some countries perform indexation between valuations by using a property price index or construction price index. Property tax rates across countries range from 0 to 4 per cent. The rate paid typically depends on the type of property and on whether exemptions or rate reductions are available e.g. primary residence exemption ([Blöchliger 2015](#)).

The most significant recurrent property tax for residential property in Ireland is the Local Property Tax (LPT). Owners of most residential properties must pay an LPT of 0.18 per cent of the assessed market value each year ([Kakoulidou and Roantree 2021](#)).⁷ Irish property prices had fallen significantly in the five years leading up to the introduction of the LPT in 2013. Since then, property prices have more than doubled, whereas the income from LPT has been relatively constant (Table 1).

TABLE 1: LOCAL PROPERTY TAX AND HOUSE PRICE GROWTH IN IRELAND

	2014	2015	2016	2017	2018	2019	2020
LPT as share of tax revenue (%)	0.7%	0.7%	0.6%	0.6%	0.6%	0.5%	0.6%
Residential Property Price Index (end-year)	96.2	103	112.2	125.9	133.8	134.2	137.2

Source: Revenue, Department of Finance, CSO

There are two primary reasons for this. First, the LPT's property valuation date of 1st May 2013 is just two months past the crisis-era low and these valuations were not updated to take subsequent increases in property values into account

⁷ 0.18 per cent is the standard rate and applies on properties valued at up to €1,000,000. The higher 0.25 per cent rate applies on any remaining value above this.

([Revenue 2022](#)). Second, owner occupied houses built since 2013 were exempt from the LPT. The LPT amendment announced in 2021 addresses both of these issues.⁸ In 2022, the May 2013 valuations have been replaced by December 2021 valuations, and previously unvalued (and therefore excluded) properties are now eligible to pay LPT. At the same time, a reduction in the LPT rate and the change in valuation bands in part offset the increase in overall yield from the changes in valuations, although LPT receipts are still expected to increase in 2022.

3. Empirical analysis on house price risks and property tax

Our empirical analysis builds on the HPaR model first discussed in Box C of the [Central Bank Financial Stability Review \(2020:II\)](#), and is set out in more detail in [Appendix A](#).⁹ The output of the HPaR model is a distribution of possible outcomes for house price growth in a range of countries over the following 4 quarters, based on existing conditions in the respective market.

The conditions include the extent to which current house prices are under- or over-valued relative to economic fundamentals, the credit cycle and other financial conditions. A shift in the entire distribution of forecasted house price growth, relative to the previous time period, represents a change in the outlook for house prices. For example, a shift to the left implies a deterioration in the outlook (generally lower expected house price growth rates), whereas a shift to the right would imply generally higher expected growth.

While it is possible to look at the distribution as a whole, for downside risks to house price growth, we focus on the 10th percentile of the distribution (HPaR 10th). An improvement in the extent of downside risks to house prices could be considered a benefit of any particular policy action. As indicated, we also look at other points of the distribution, in particular the median (HPaR 50th) and the upper part (HPaR 90th), with relative changes across the three different points being indicative of changes in the overall range of potential house price growth. If gap between these points in the distribution increases (decreases), the outlook for house price growth becomes more (less) variable.

When evaluating the benefits of any specific policy action, it is also important to consider the costs that could be associated with it. If a higher incidence of property tax significantly reduced upside risk (HPaR 90th) or median expectations for house price growth (HPaR 50th) for an extended period it may excessively dampen the returns achievable for housing developers and limit the extent of supply in the market. However the extent to which this is the case also relies on how the costs of

⁸ [Announcement of changes to Local Property Tax](#)

⁹ The “at-risk” approach is an extension of [O’Brien and Wosser \(2021\)](#).

housing delivery evolve (land, labour, raw material, professional services, financing, etc.).¹⁰

Table 2 summarizes the output from the HPaR model which we use for the time period considered (1995-2020). Focussing on the Irish figures relative to the sample average, it can be seen that house price growth in Ireland has been somewhat higher on average than other advanced economies (6.0 per cent vs 4.2 per cent). At the same time, downside risks to house prices have been typically worse in Ireland than the sample average (-4.3 per cent vs -1.8 per cent), whereas the extent of upside risk has also been larger (15.6 per cent vs 10.3 per cent). Combined this leads to a wider distribution of potential house price outcomes in Ireland than our sample average (19.9 percentage points vs 12.1 percentage points).

TABLE 2: AVERAGE ANNUAL NOMINAL HOUSE PRICE GROWTH AND 1-YEAR FORECAST DISTRIBUTION AT VARIOUS PERCENTILES

Country	HP YoY Growth	HPaR 10th	HPaR 50th	HPaR 90th	Diff 90 th -10 th
Ireland	6.0	-4.3	5.3	15.6	19.9
Average	4.2	-1.8	4.1	10.3	12.1
Austria	3.7	-0.2	5.1	10.5	10.7
Belgium	4.5	0.2	4.1	7.4	7.2
Denmark	5.5	-2.1	4.5	13.9	16
Finland	4.0	-3.6	3.1	11.4	15
France	4.2	-2.1	2.9	9.0	11.1
Germany	1.6	-0.5	1.8	4.4	4.9
Greece	4.0	-3.0	2.5	12.2	15.2
Italy	1.8	-2.5	1.6	6.2	8.7
Luxembourg	3.5	-0.2	4.4	14.6	14.8
Netherlands	5.2	-0.8	5.2	9.3	10.1
Poland	2.6	-0.3	4.1	7.6	7.9
Portugal	3.3	-0.8	5.3	9.3	10.1
Spain	4.5	-4.3	4.5	9.9	14.2
Sweden	6.4	-2.4	6.5	11.5	13.9
UK	5.9	-1.2	4.7	12.0	13.2

Source: CSO, IMF, BIS, Central Bank of Ireland and Author calculations

Note: Time period considered 1995-2020. Data for LU, PL and PT are only available from the mid 2000's.

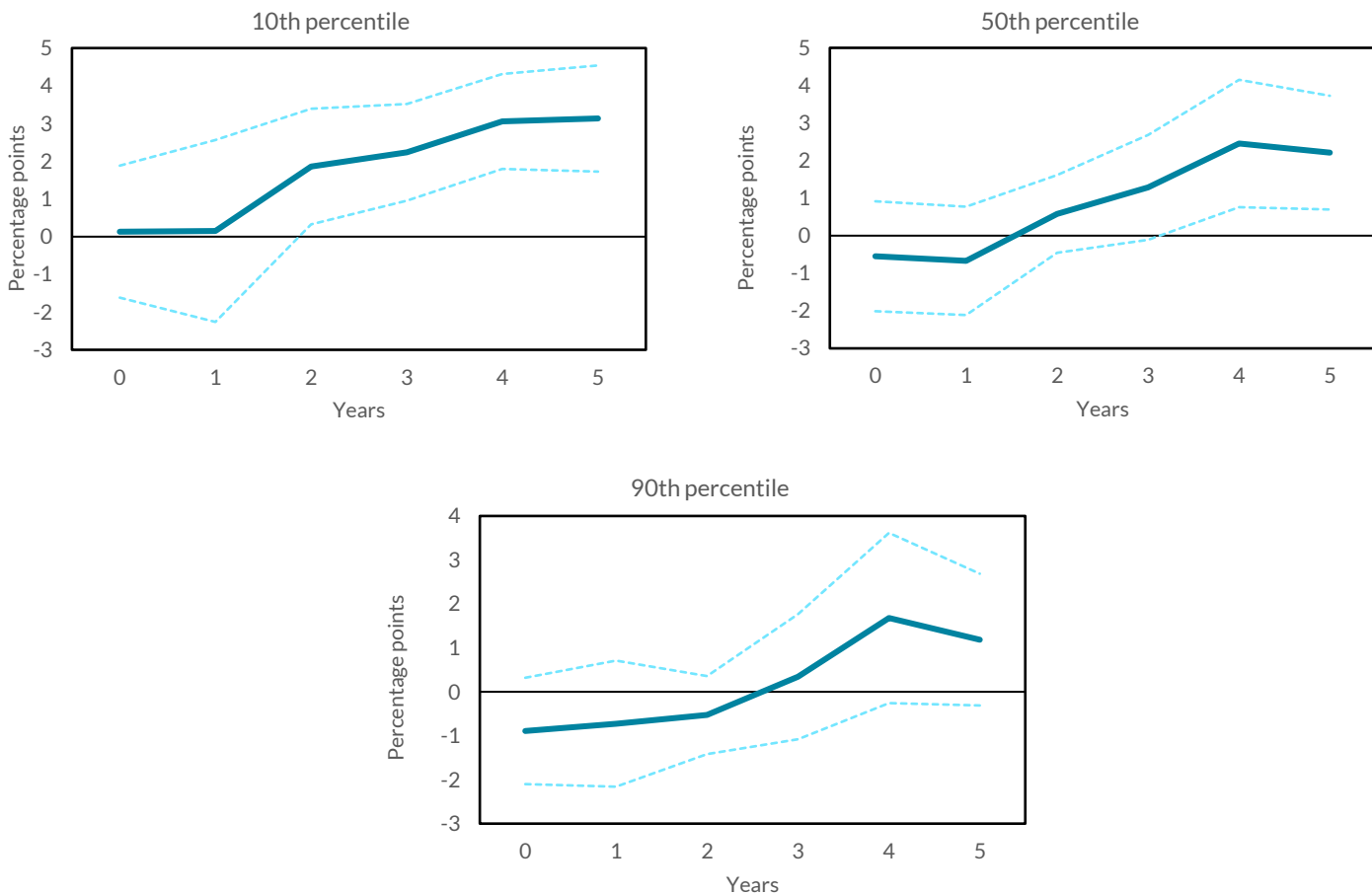
3.1 Property tax and the distribution of potential house prices

We combine the output from the HPaR model with data on the prevalence of recurrent property taxes through time discussed in Section 2 (proportion of GDP,

¹⁰ Lyons and Günnewig-Mönert (2022).

GNI* for Ireland). To assess whether higher (lower) incidence of recurrent property tax can reduce (increase) downside risks to house prices or the distribution of house price outcomes overall we make use of local projections.¹¹ This allows us to see what impact a 1 percentage point change in the share of recurrent property tax in national income has on HPaR 10th, HPaR 50th and HPaR 90th. Chart 3 displays the results.

CHART 3: Effect of changes in recurrent property tax level on the distribution of potential house prices



Source: OECD, BIS, CSO, ECB, Central Bank of Ireland and author calculations.

Note: Impulse responses and 90% confidence intervals derived using local projection methods following an unbalanced panel regression including data from the 16 countries in our sample from 1995-2020. Regression includes a constant, contemporaneous and one lag of the ratio of recurrent property tax to GDP (GNI* for IE) and the nominal GDP growth rate, one lag of the dependant variable (HPaR 10th, HPaR 50th and HPaR 90th, respectively), time and country fixed effects. An indicator for the presence of macroprudential policies in the mortgage market was also included in an additional version and yielded similar results.

The 10th percentile results indicate that higher incidence of recurrent property taxes are associated with a reduction in the severity of downside risks to house prices. This effect is apparent after about two years, meaning there is little change to downside risk in the short term. However, the benefit of lower downside risk

¹¹ See [Jorda \(2005\)](#) and [Plagborg-Møller & Wolf \(2021\)](#). Our approach is similar to [Loria et al \(2019\)](#).

seems to persist when it does become apparent. In contrast, the impact on the 50th percentile of the distribution is not statistically evident until approximately 4 years, and is smaller than the impact on the 10th percentile. For the 90th percentile, the effect is not significant in any period. This is consistent with recurrent property taxes reducing the severity of adverse outcomes, without adding to excessive house price growth during periods of significant growth. Taken together, the results indicate that a higher incidence of recurrent property tax-take is associated with a reduction in the overall distribution of potential house price outcomes from roughly two years onwards. This suggests a positive role for recurrent property taxes in reducing downside risk and overall variability in house prices.

3.2 Are property taxes less cyclical?

There has been considerable attention given to the cyclicity of certain tax categories in Ireland. Receipts from direct income taxes and capital gains tax, for example, tend to rise and fall in-line with economic growth ([Kakoulidou and Roantree 2021](#), [Parliamentary Budget Office 2021](#)). This presents a challenge for governments – when growth weakens and the public finances are already under strain, revenue from cyclical tax heads may decline. It is therefore worth considering if, in addition to the possible benefits in terms of reducing downside house price risks, recurrent property taxes represent a more stable source of revenue through the economic cycle. Table 3 summarises the results of panel regressions that assess cyclicity by estimating the correlation between nominal economic growth and revenues from six tax categories.¹²

TABLE 3: DEGREE OF CYCLICALITY ACROSS TYPES OF TAX

	Δ Total Tax	Δ Property Tax	Δ Corporation Tax	Δ Income Tax	Δ Sales Tax	Δ Social Security
Δ GDP	0.82***	-0.41	1.10***	0.71***	0.94***	0.68***
Obs #	442	381	441	441	441	439
R ²	0.76	0.09	0.34	0.30	0.55	0.11

Source: Authors calculations derived from OECD and EC data.

Note: Correlation coefficient from an unbalanced panel regression including annual data from the 16 countries in our sample from 1995-2020. A constant, time and country fixed effects were also included. GNI* used instead of GDP for IE. ***, **, * denote statistical significance at the 1, 5, and 10 per cent levels, respectively.

As expected, most tax categories are strongly cyclical, as indicated by the positive and statistically significant coefficients. Recurrent property taxes are the sole exception – the coefficient is not statistically significant. This is in contrast with the result for total taxes and the other tax categories. A 1 per cent increase in nominal

¹² This analysis is equivalent to estimates of revenue buoyancy in the public finance literature.

GDP, for example, is associated with a 0.82 per cent increase in income tax. It is important to note that our focus here is correlation, not causation. As a result, the results also suggest that recurrent property taxes are potentially less distortionary compared to other tax categories, in that increases (decreases) in such taxes may be less likely to moderate (stimulate) economic growth.

We repeated the exercise from Table 3 using house price growth instead of GDP (GNI*) growth and found no statistically significant correlation between changes in recurrent property taxes and house prices. Both this and the main result with respect to economic growth probably reflects the general design feature of these taxes of relatively infrequent revaluation of properties and the use of valuation bands for calculating tax liability. Policy-makers must balance the frequency of revaluation to maximise the overall effectiveness, efficiency, equity and stability of recurrent property taxes.

Alongside the frequency and method of valuation, policy-makers also need to take a holistic view on appropriate tax rates and the base (type of properties) on which the tax is to be levied. While a more formal analysis would be required to fully characterise the macro-fiscal linkages and the context for specific calibration of different taxes, our results provide some support for the public finance and housing market benefits of recurrent property taxes. These benefits can be added to the wider consideration policy-makers must make when designing and calibrating particular taxes.

4. Conclusion

This *Letter* examines the role of recurrent property taxes across European economies. We show that recurrent property taxes may have multi-faceted advantages for policymakers. Among these is that a higher incidence of recurrent property taxes is associated with reduced severity of downside risk to house prices and the overall volatility of potential house price outcomes. In this sense, the property tax system can complement macroprudential tools in achieving financial stability objectives in the housing market. Additionally, the relative acyclicity of recurrent property taxes, as they are typically designed, can provide a source of revenue that unlike the other main tax categories, is less significantly affected by the economic cycle. The results presented in this *Letter* alone cannot specify the appropriate design of recurrent property taxes (rate, base, valuation/revaluation, etc.). Such decisions require a broad suite of information to be considered. However, in-line with the findings of [O'Connor et al. \(2013\)](#), it is reasonable for governments to consider how property taxes might be calibrated, in the context of the overarching tax system and prevailing economic conditions, so that their advantages can be fully realised.

Appendix A – House Price at Risk (HPaR) Methodology

The House Price at Risk (HPaR) model is an extension of [O'Brien and Wosser \(2021\)](#). Using a quantile regression framework, the model generates an entire distribution of potential house price outcomes based on current conditions. The model includes current house price growth, measures of financial conditions (Irish Composite Stress Index in case of Ireland), measures of cyclical systemic risk via the inclusion of a Credit-to-GDP gap variable (alternative credit gap in the case of Ireland), and a measure of house price misalignment (deviation of house price to income ratios from long-run trend). This specification has been shown to improve forecast accuracy in central as well as tail growth outcomes compared with actual growth realised and contrasted with an autoregressive model (AR(2)).

$$\Delta HP_{t+4,i,j} = \alpha_j + \beta_{1,j}\Delta HP_{t,i} + \beta_{2,j}FinCond_{t,i} + \beta_{3,j}CycSysRisk_{t,i} + \beta_{4,j}Misalignment_{t,i} + FE_i + \epsilon_j$$

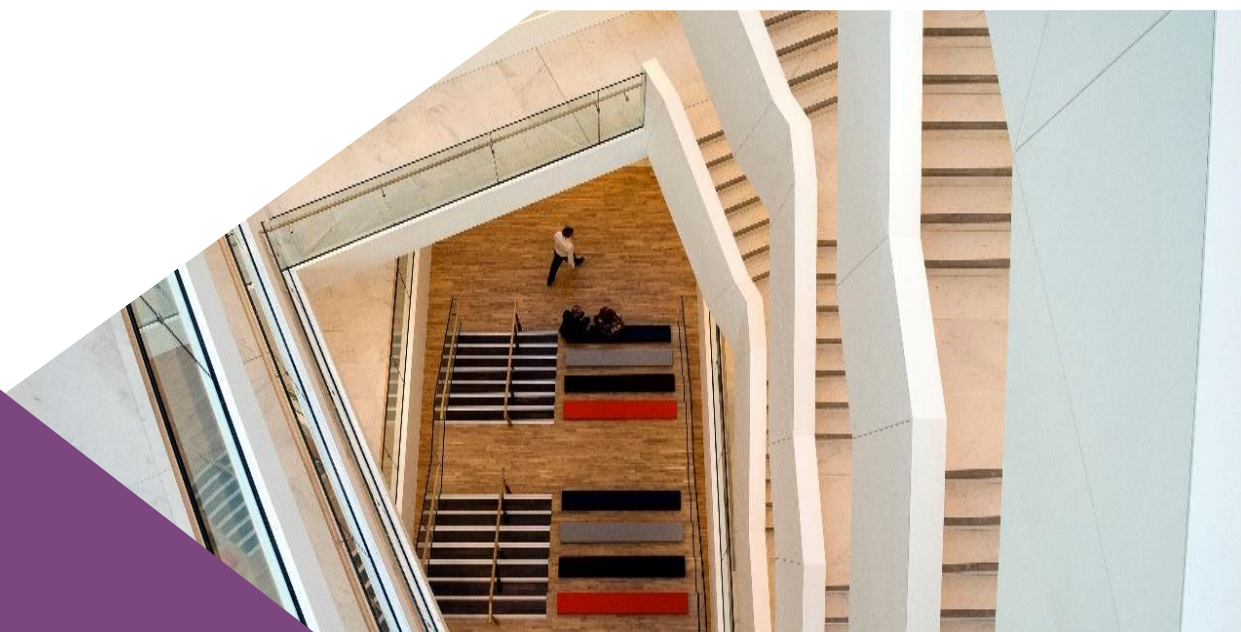
In the above specification regression coefficients are estimated for each percentile j of the 4 quarter-ahead forecast of house price growth (ΔHP), for a panel of i advanced economies spanning the period 1990Q1 to 2020Q4. The regression output for the 10th, 50th and 90th percentile are reported below.

TABLE A1: HPaR QUANTILE REGRESSION RESULTS

	HPaR 10 th	HPaR 50 th	HPaR 90 th
$\Delta HP_{t,i}$	0.5969***	0.6248***	0.6456***
$FinCond_{t,i}$	-0.0939***	-0.0495***	0.0994***
$CycSysRisk_{t,i}$	-0.0009***	-0.0003**	-0.0002
$Misalignment_{t,i}$	-0.0006***	-0.0006***	-0.0007***
Obs #	697	681	687
Country Fixed Effects	Yes	Yes	Yes

Source: Authors calculations.

Note: ***, **, * denote statistical significance at the 1, 5, and 10 per cent levels, respectively. Bootstrap standard errors.



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