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## Residential land prices for the Irish property market: An initial examination

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### *Abstract*

A noticeable data gap in the evaluation of any property market is that of a residential land price series. Land costs are one of the most significant components of housing construction, however many markets do not have accurate information on such prices. The Irish housing market, more than most has been subject to significant volatility over the past 25 years with key variables such as prices and supply fluctuating considerably. Consequently, the absence of a series on land prices is particularly acute in its case as it inhibits, amongst other issues, an accurate assessment of the determinants of housing supply. In this paper we avail of one approach popular in the literature which estimates the residential land price as the difference between the actual house price and the cost of rebuilding the property. Based on this, we generate a land price series for a number of Irish cities: Dublin, Cork, Galway and Limerick. Our series reveals that, while land costs rose sharply in the period referred to as the Celtic tiger, they fell significantly afterwards before recovering strongly in recent years. Our estimates also suggest that land prices are somewhat more volatile than house prices even though the latter have fluctuated considerably in the Irish market.

*Keywords:* Land prices, house prices.

*JEL codes:* R30, R32, Q24.

## ***Introduction***

As with any housing market the absence of an official series on residential land prices in the Irish market is a noticeable data omission. However, it can be argued that the absence of such a series in the Irish case is even more profound given the developments in the domestic market. A number of studies such as Egan and McQuinn (2022, 2023) have noted the exceptional volatility experienced by key housing market indicators in an Irish context vis-à-vis international comparators over the past 25 years. This is even after many western economies have witnessed significant variability in the fortunes of their respective housing markets over the same period.

Amongst other issues, information on land prices enables a richer characterisation of the supply-side of the housing market. Typically, housing supply functions consist of house prices, material and labour costs, however, they generally exclude land cost on the basis of a lack of accurate and relevant data for the series. Studies such as Follain (1979), Stover (1986), Topel and Rosen (1988), Poterba (1991) DiPasquale and Wheaton (1994), Mayer and Somerville (1996), Kenny (1999, 2003), Malpezzi and MacLennan (2001), Addison-Smyth, McQuinn, and O'Reilly (2009) and Egan, McQuinn and O'Toole (2022) rarely include land costs in their empirical specification of housing supply models due to the lack of a series on land costs. However, where data on land costs are available it is clear that land costs can be between 15 to 20 per cent of the cost of supplying a new house (SCSI (2023)).<sup>1</sup>

The relationship between land and house prices is somewhat complex in nature. For example, Roche (2003) concluded that one of the main reasons for the substantial increase in Irish house prices at that time was a significant increase in land costs. On this basis Roche (2003) contested that there was not, as a number of commentators at the time had contested, a speculative bubble in Irish house prices but rather that house prices were explained by the increase in land costs. Other studies such as Davis and Palumbo (2008), Knoll, Schularik and Steger (2017) and Ryan-Collins, Lloyd, McFarlane and Muellbauer (2017) also indicate that increasing land prices are a key determinant of higher house prices, however, as noted by Ball, Shepherd and Wyatt (2022), the relationship between house and residential land prices is somewhat more nuanced and can not necessarily be characterised by a single or one-way causation. Rather, Ball et al. (2022) argue, changes in house prices impact the price of residential land quite quickly, while variations in the supply of residential land tend to impact the price of housing in a slow manner. Part of the ambiguity in the relationship may be due to the fact that, in comparison with standard inputs in the housing construction process such as labour and concrete, land can be used as

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<sup>1</sup> In terms of a cross-country comparison, Muellbauer (2023) presented data from the OECD national balance sheets for non-financial assets owned by households which appeared to show land costs being somewhat higher as a proportion of housing wealth. However, it should be noted that this refers to assets on a net basis, where the net value of an asset is calculated as its gross value decreased by the value of consumption of fixed capital (depreciation).

collateral for development finance as an asset on a balance sheet, which can ultimately facilitate further investment in either land or housing.

Given the nature of house price developments in the Irish market over the past 25 years, the absence of a series for residential land prices seems to be a particularly large omission. As noted in Egan and McQuinn (2023), amongst western housing sectors, the Irish market presents as a particularly volatile case over the past 25 years due to a variety of changing policy and real-economy pressures. The global easing of monetary policy on a continual basis since the early 1990's enabled mortgage finance to become considerably cheaper. This stimulatory impact on housing demand was compounded from the mid-1990's with the emergence of the "Celtic tiger". Lower interest rates were now accompanied by rising income levels in the Irish economy as unemployment rates began to fall quite sharply following the significant increase in economic activity. From the early 2000's these demand-side pressures were further stimulated by the considerable easing of credit conditions in the Irish financial sector (McCarthy and McQuinn (2017)). This period of financial sector liberalisation ultimately gave rise to a credit-fuelled housing bubble which resulted in the Irish financial sector being particularly vulnerable to the impact of the global financial crisis. As financial sector difficulties intensified, the Irish economy went into a sharp recession with house prices falling by 55 per cent in nominal values between 2007 and 2012. Since 2012, however, as the general economy recovered, housing demand rebounded in a persistent manner with prices in 2023 up by 123 per cent compared with the equivalent levels in 2012. The impact of the residential property market on the domestic economy highlights the importance of obtaining an accurate characterisation of the different determinants of housing supply and demand.

To address this data gap, in this paper we follow the approach of Davis, Larson, Oliner and Shui (2021), Davis, Oliner, Pinto and Bokka (2017) and Davis and Palumbo (2008) and take the price of land as the difference between house values and the replacement cost of the structure of the house. Using data from industry experts, we are able to construct a series for the re-construction of a representative house in four Irish cities (Dublin, Cork, Limerick and Galway) over the period 2000 – 2017. Complementing this with data on actual house prices for the same areas, we can then calculate the difference between actual house prices and the cost of rebuilding a property. We then use a further breakdown of house building costs from industry data to determine how much of this difference is attributable to land prices.

The rest of the paper is as follows; in the next section the empirical approach is outlined, the different industry-based estimates of housing costs are then discussed with a series for residential land prices over the period 2000 – 2017 presented. The variation in land costs compared with house prices are then assessed and estimates for the more recent period, 2018 – 2022, are also generated. The residential land prices are also compared with estimates for agricultural land prices and a final section offers some concluding comments.

### ***Empirical approach***

Davis, Larson, Oliner and Shui (2021) highlight two different ways from the literature of calculating residential land prices. One approach consists of using data from sales of vacant or near-vacant land. There are a number of examples of such an approach including Haughwout, Orr and Bedoll (2008) and Albouy, Ehrlich and Shin (2018) who estimate the price of land inside the New York metro area and the average value of urban land in nearly all metropolitan areas in the United States respectively.

The second approach to generating land prices involves taking the difference between actual house prices and the cost of rebuilding the property. Davis and Palumbo (2008) present the analytical framework for measuring land prices in the following manner: The percentage change in home prices in region  $j$  during period  $t$  ( $d_{jt}^P$ ) can be expressed as the weighted average of the percentage changes in replacement costs of the property ( $d_{jt}^{RC}$ ) and residential land prices ( $d_{jt}^{LP}$ )

$$d_{jt}^P = \pi_{jt-1}^S d_{jt}^{RC} + \pi_{jt-1}^L d_{jt}^{LP} \quad (1)$$

The weights  $\pi_{jt-1}^S$  and  $\pi_{jt-1}^L$  are the weights associated with the shares of home values accounted for by the replacement cost for residential properties and residential land prices at the beginning of period  $j$ . (1) can be re-arranged so that the increase in land prices can be expressed as a weighted average of the change in replacement costs and house prices:

$$d_{jt}^{LP} = \frac{1}{\pi_{jt-1}^L} [d_{jt}^P - \pi_{jt-1}^S d_{jt}^{RC}] \quad (2)$$

To calculate the replacement cost, in terms of materials and labour, of rebuilding a property, we take the house building cost index published by the Society for Chartered Surveyors Ireland (SCSI)<sup>2</sup> which monitors labour costs in the construction industry and the cost of building materials. This index does not include items such as overheads, profit, interest charges or land development. It is available on a monthly basis from 2000 to 2017.<sup>3</sup>

Separately, the SCSI also provides an actual monetary value for the cost of rebuilding an actual three-bedroom semi-detached property in Dublin, Cork, Limerick and Galway again in terms of materials and labour cost. This is available for May 2016. Therefore, we backcast and forecast the May 2016 observation using the rebuilding index.

For house prices, we take the actual price of a house in the four cities in 2023 quarter one based on the real estate alliance (REA)/ Irish Independent survey<sup>4</sup>. This monetary value is then backcast using the mean sale price from the Central Statistics Office (CSO) series on all dwelling statuses and for all buyer types. This series starts in 2010 and all prices before that date are backcast using the house price series

<sup>2</sup> See <https://scsi.ie/house-building-cost-index/> for details.

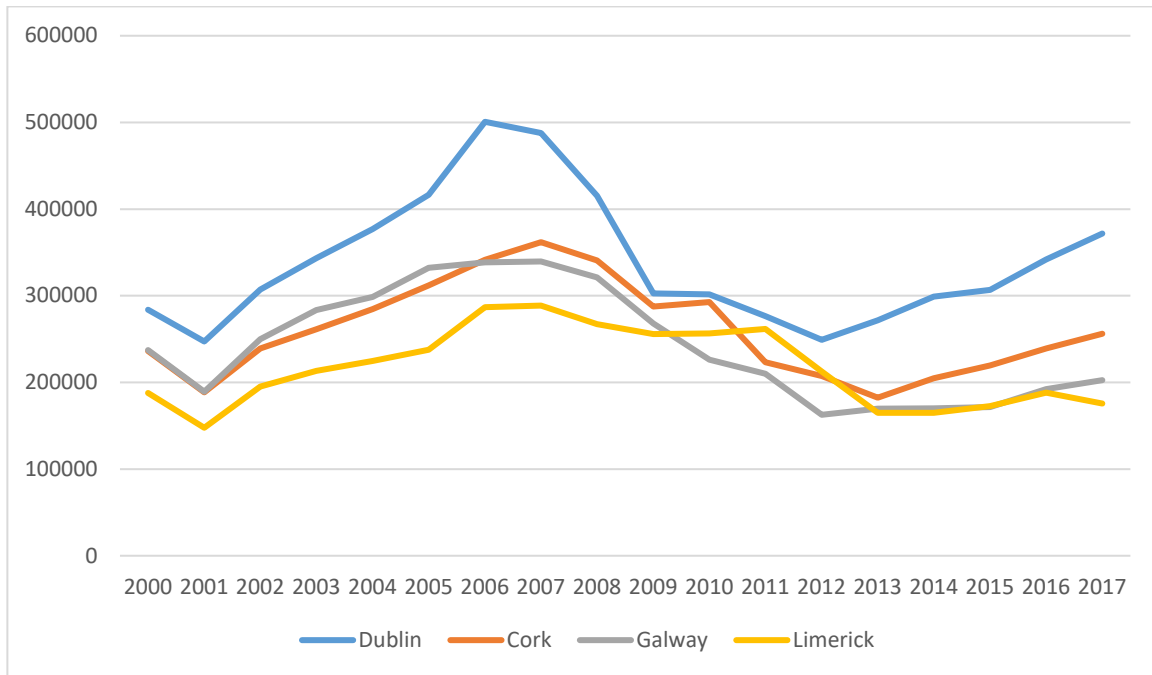
<sup>3</sup> This residual based measure does resonate with the residual method of setting land bid envelopes widely employed in residential development appraisal.

<sup>4</sup> Further details are available at <https://www.realestatealliance.ie/rea-average-house-price-per-county-p7025>

from the Department of Housing, Planning and Local Government. Having the monetary value for the cost of rebuilding in 2016 along with the actual house price allows us to calculate the weightings  $\pi_{jt}^S$  and  $\pi_{jt}^L$ .

Figures 1 and 2 plot actual house prices<sup>5</sup> for the four Irish cities and the cost in €'s of rebuilding a representative property in each city, while Figure 3 plots the difference between Figures 1 and 2.

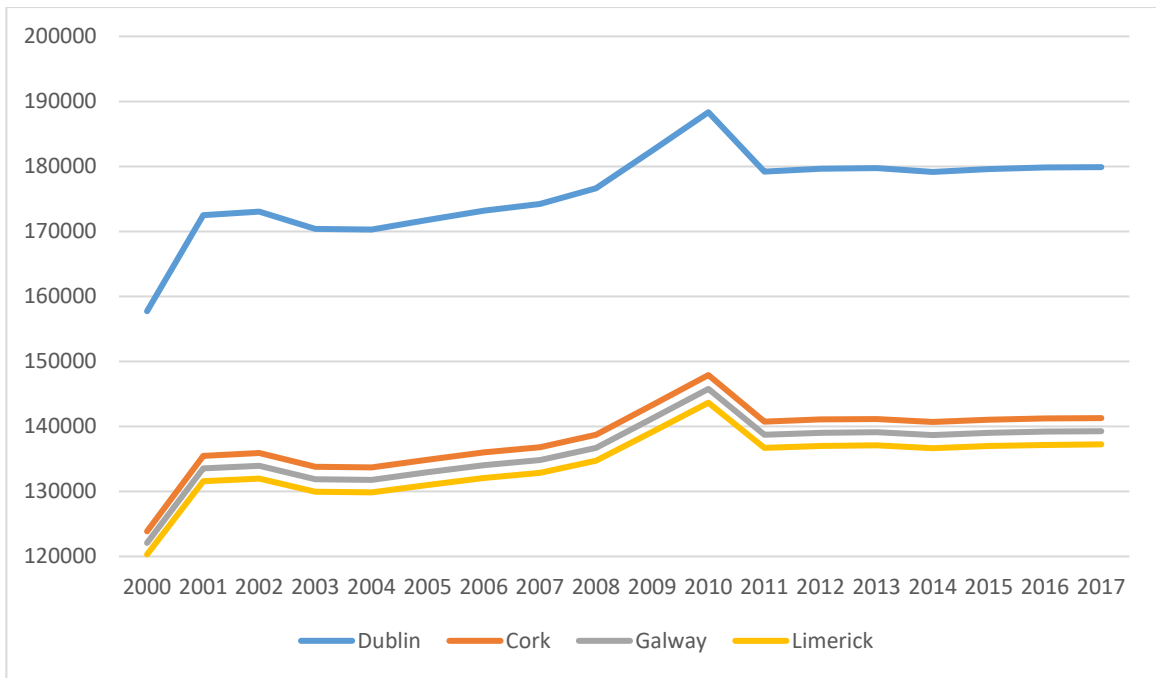
**Figure 1:** Property prices for select Irish cities: 2000 – 2017 (€)



**Source:** Central Statistics Office 2005 – 2017, Department of Housing 2000 – 2005.

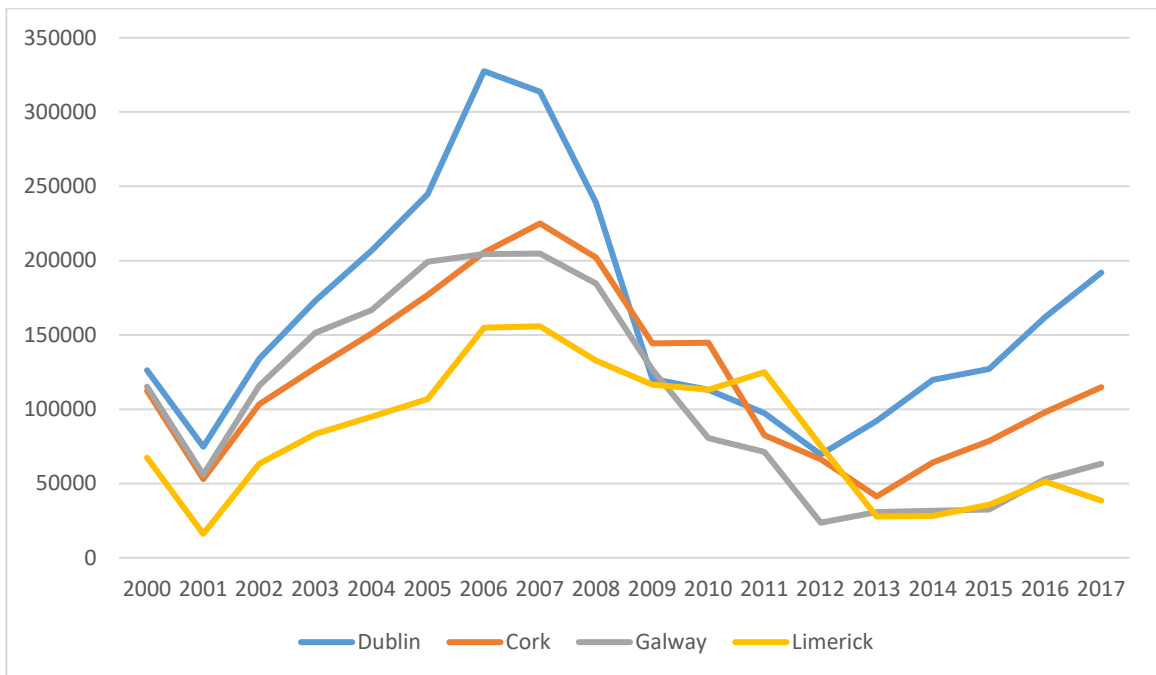
**Figure 2:** Estimated rebuild cost of residential property in select Irish cities: 2000 – 2017 (€)

<sup>5</sup> Unless stated otherwise, all monetary values are deflated with the consumer price index (CPI) with 2015 = 100.



Source: Society of Chartered Surveyors Ireland.

Figure 3: Difference between rebuilding costs and house prices for select Irish cities: 2000 – 2017 (€)



Source: Own calculations.

From the charts it is evident that the Dublin area has experienced the most significant variability in terms of house prices. Clearly when the overall housing market is experiencing strong demand, prices tend to increase more in Dublin than in other cities, conversely during the post global financial crisis

(GFC) downturn, 2009 – 2012, house prices in Dublin, Cork and Limerick almost converged. However, once the economy recovered after 2012 and economic conditions improved Dublin prices escalated at a faster pace again. From Figure 2, it is clear that the cost of rebuilding a property is significantly higher on average in Dublin compared to other cities.<sup>6</sup> Overall this results in the difference between house prices and the rebuild costs in the Dublin area exhibiting greater volatility as is clear from Figure 3; much like house prices, when economic conditions are favourable, the difference between the series in Dublin rises faster than the rest of the country and when conditions deteriorate the difference in the Dublin series tend to align with those in Limerick and Cork.

### ***Residual based measure?***

As noted previously, the SCSi rebuilding costs quite explicitly includes labour costs and the cost of building materials, however, it does not include, for example, overheads, interest charges or the profit margin involved in building a house. Information on these other series is available but only on an infrequent basis for recent years. SCSi (2023) provides a detailed breakdown of the total real cost of new housing delivery for the Dublin area for 2016, 2020 and 2023 and for the Cork and Galway areas for 2023. These costs are summarised in tables 1 and 2 below:

**Table 1:** Elemental cost breakdown for the Dublin area for select years (%)

Cost item	2016	2020	2023
House building cost	37.0	37.4	38.8
Siteworks	8.5	10.8	10.6
Professional fees	1.7	1.5	2.3
Levies	3.6	3.8	4.0
Land	17.4	16.4	15.2
Sales & marketing	2.5	2.3	2.0
Finance costs	6.1	4.5	5.0
Margin	11.5	11.5	11.7
VAT	11.9	11.9	10.5

Source: <https://scsi.ie/realcost2023/>

**Table 2:** Elemental cost breakdown for the Dublin, Cork and Galway areas for 2023 (%)

Cost item	Dublin	Cork	Galway
House building cost	38.8	39.5	44.4
Siteworks	10.6	12.2	12.0

<sup>6</sup> It should be noted that this is by construct as it is the same index used to backcast the actual rebuild cost in 2016 so by definition the difference in 2016 levels is kept constant throughout the sample.



Professional fees	2.3	2.5	2.7
Levies	4.0	2.8	4.4
Land	15.2	14.4	12.8
Sales & marketing	2.0	2.1	2.3
Finance costs	5.0	4.9	2.9
Margin	11.7	11.4	9.7
VAT	10.5	10.2	8.7

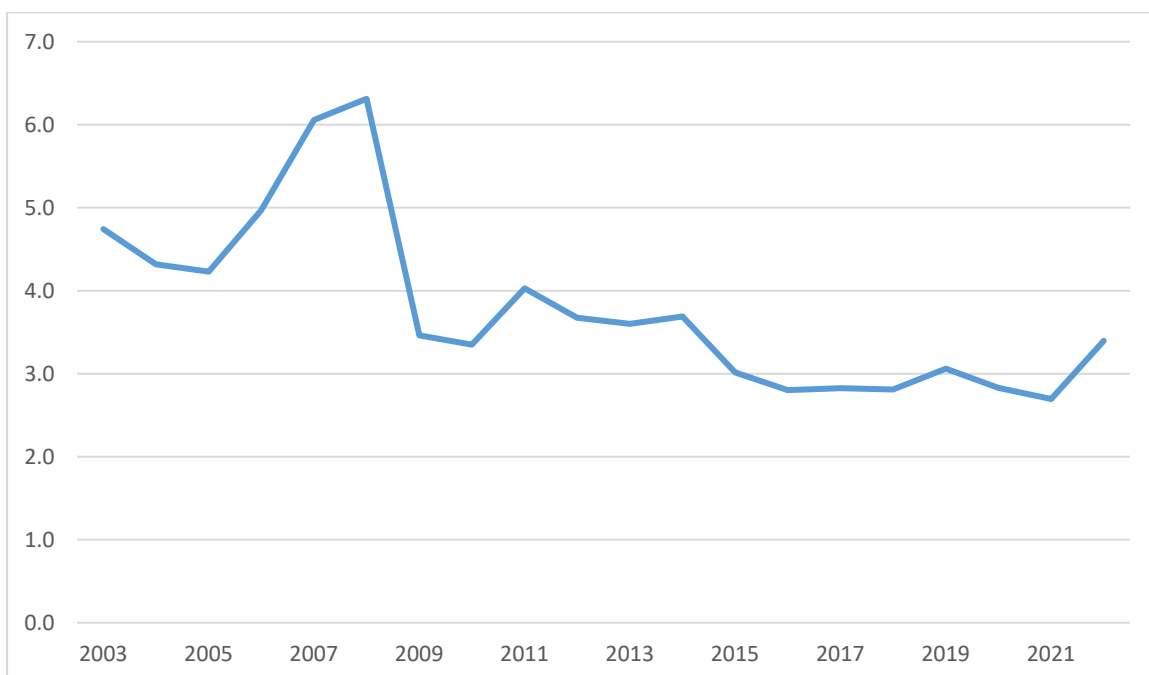
Source: <https://scsi.ie/realcost2023/>

From the tables, the cost of rebuilding a house varies between 37 and 44 per cent of the total cost of building a house over the period 2016 to 2023. Land costs are somewhere in the region of 13 to 17 per cent of the total cost depending on the year and location. Of the difference between the rebuilding cost and the final house price land costs account for approximately 25 to 28 per cent for the Dublin area and 23 per cent for Cork and Galway.

Therefore, in order to generate a time series of land prices we propose to apply these coefficients to the difference between the rebuild costs and the actual house prices presented in Figure 3 above. This assumes that land would have been a relatively constant share of this difference over the period 2000 to the present. In this section, based on what information is available, we seek to assess how some of these other costs may have changed through the period 2000 – 2022 in question.

One indicator of interest charges is the cost of borrowing for Irish corporations as this is the interest rate most applicable for those engaged in the construction sector.

**Figure 4:** Cost of borrowing funds (%) for Irish non-financial corporations: 2000 – 2022



**Source:** European Central Bank (ECB)

From the graph it is obvious that for the majority of the sample, interest rates have been low and stable. Rates did increase in 2006 and 2007 just before the global financial crisis, however, they quickly adjusted downwards thereafter. This indicates that interest charges have not varied substantially for those in the construction over the period in question. However, it should be noted that while the cost of finance has not varied significantly since the GFC, due to significant changes in the regulatory environment, traditional financial institutions are no longer willing to finance in excess of 70 per cent of the development cost of a project. Consequently, developers are increasingly required to access the additional capital from secondary funds.

Obtaining systematic information on overheads and other ancillary cost issues is quite difficult in the case of the property market. However, one source of information in this regard is the OECD cost of doing business survey.<sup>7</sup> This survey looks at the time, cost and paid-in minimum capital requirement for a small- to medium-size limited liability company to start up and formally operate in each economy's largest business city. The survey is conducted across 190 economies and to make the data comparable the survey uses a standardized business that is 100% domestically owned, has a start-up capital equivalent to 10 times the income per capita, engages in general industrial or commercial activities and employs between 10 and 50 people one month after the commencement of operations, all of whom are domestic nationals.

The survey looks to record all the procedures which are officially required, or commonly done in practice, for an entrepreneur to start up and formally operate an industrial or commercial business, as well as the time and cost to complete these procedures and the paid-in minimum capital requirement. For example, these procedures include the processes entrepreneurs undergo when obtaining all necessary approvals, licenses, permits and completing any required notifications, verifications or inscriptions for the company and employees with relevant authorities. The different economies are then ranked on the ease of starting a business by sorting their scores for starting a business. These scores are the simple average of the scores for each of the indicators' component. The scores are available for individual sectors within an economy, with the construction sector being one identified.

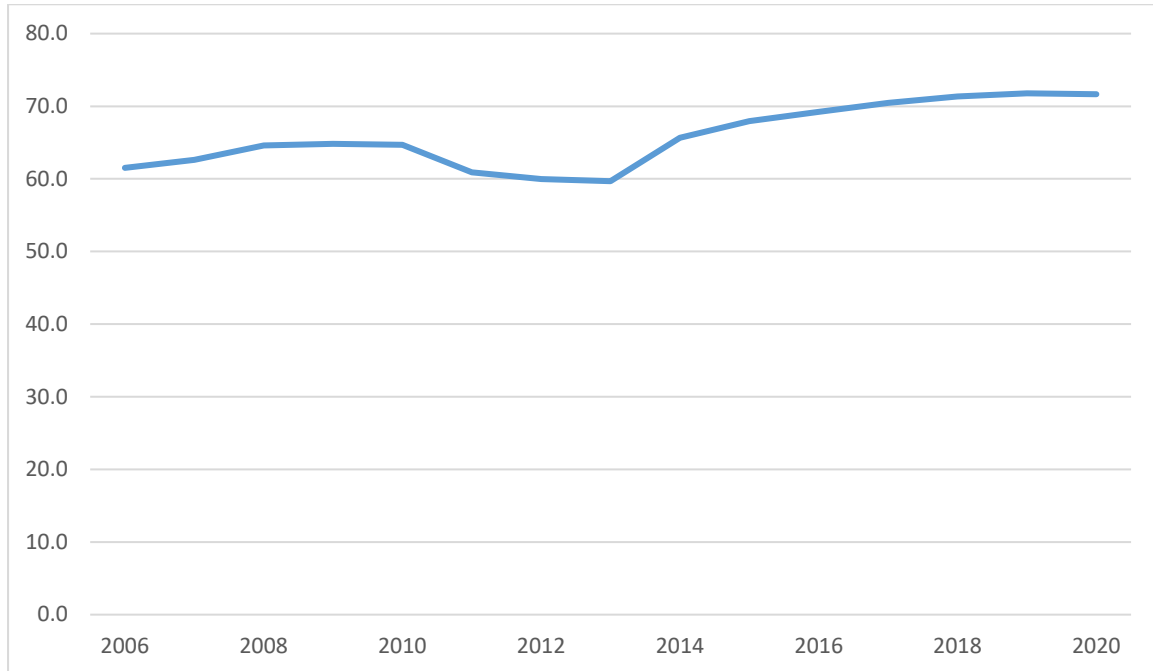
In Figure 5 below one such indicator for the Irish construction sector is presented. This indicator is the score for dealing with construction permits and is the simple average of the scores for each of the component indicators: the procedures, time, cost to deal with construction permits, as well as the building quality control index that evaluate the quality of building regulations, the strength of quality

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<sup>7</sup> See <https://subnational.doingbusiness.org/en/data/exploretopics/starting-a-business/score> for details.

control and safety mechanisms, liability and insurance regimes and professional certification requirements.

**Figure 5:** World bank cost of business indicator for Irish construction sector: 2006 – 2020



**Source:** World Bank

The indicator suggests that compared to other countries there has been a gradual improvement in the performance of the Irish construction sector for the period 2006 – 2020. The performance of the sector appeared to disimprove from 2010 to 2012 but improved from 2013 onwards.

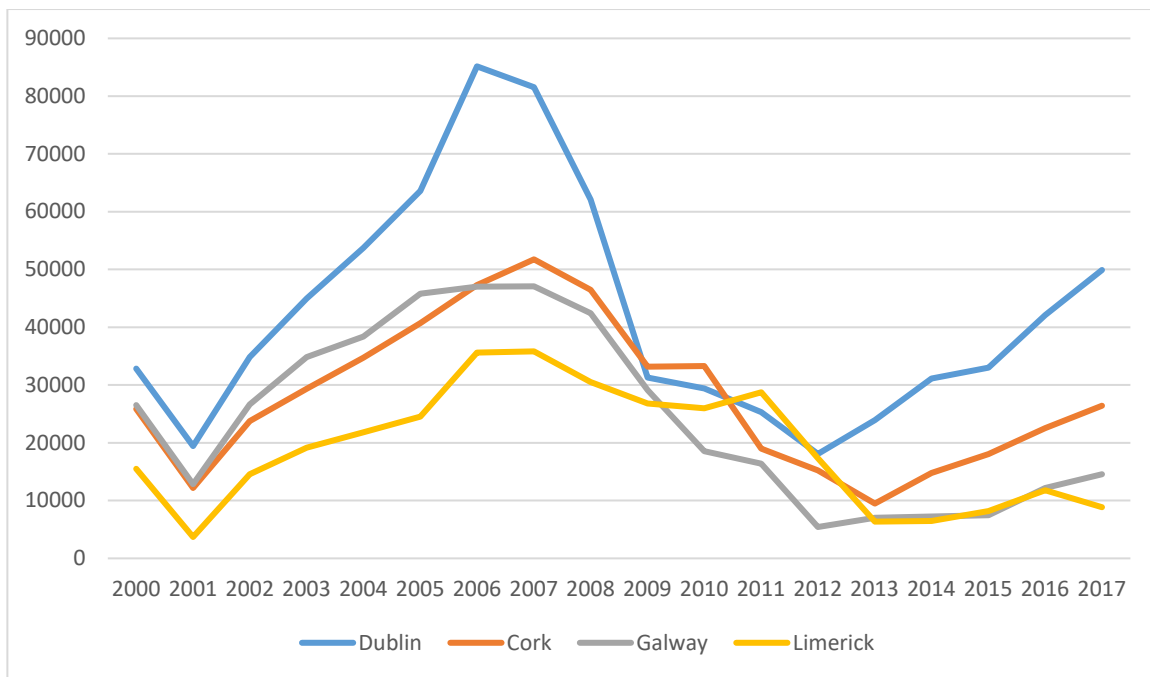
What both this and the information on the cost of finance appear to suggest is that the Irish construction sector has not encountered very significant changes in interest charges and regulatory costs over the period in question. In the absence of a comprehensive set of information on all construction related costs over the period, this does provide some support for the argument that the share of house building costs outlined in tables 1 and 2 are unlikely to have changed that much since 2000.

Therefore, to generate a land price series for the different regional markets we apply a coefficient of 26 per cent to the differences presented in Figure 3 for the Dublin area and a coefficient of 23 per cent for the differences presented for the other Irish markets. This results in the following historical series for land prices over the period 2000 – 2017<sup>8</sup>:

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<sup>8</sup> All cost items including land costs are presented on the basis of an average 3-bedroom semi-detached property, which according to the SCSI is 1,023 square foot. Therefore, on a per square foot basis, land prices in Dublin, Cork, Galway and Limerick in 2017 are €48.8, €25.8, €14.2 and €8.6 respectively.

**Figure 6:** Estimated residential land prices for select Irish cities: 2000 – 2017 (€)



**Source:** Own calculations.

As can be seen, land prices in the Dublin market clearly exhibit greater variation over the period when compared with Cork, Galway and Limerick. Dublin prices grew substantially during the Celtic tiger era before falling substantially from 2007 onwards. However, land prices in the capital showed strong growth from 2012 onwards.

### ***Comparison of house prices and land values***

The period 2000 – 2017 witnessed considerable volatility in house prices in an international context; sharp increases across a number of countries were observed in the period preceding the great financial crisis (GFC) only for these countries to experience a substantial correction in prices thereafter. However, even by international standards as noted in Egan and McQuinn (2022, 2023) and Cronin and McQuinn (2021, 2023) Irish house price movements were particularly volatile. Cronin and McQuinn (2021) characterise the period 1995 – 2020 by three distinct sub-periods; the pre 2007 period, commonly referred to as the Celtic tiger, where house prices and supply levels soared off the back of significant economic growth and a seismic credit bubble which emerged in the Irish financial sector, the 2007 – 2012 period, where activity and price levels collapsed as both the financial and real Irish economy was plunged into a sharp decline and the post 2012 period when the general economy recovered in a swift and persistent manner with housing demand simultaneously rising.

Therefore, in this section we compare the volatility in the land price series with that of actual house prices. We take the three sub-periods identified by Cronin and McQuinn (2021) and examine the nature

of the peak to trough changes which occurred in both house prices and residential land prices over the period. The results are summarised in Table 3.

**Table 3:** Percentage change in select Irish cities house prices and land prices for different subperiods.

Region	Variable	2000 - 2007	2007 - 2012	2012 – 2017
Dublin	House prices	71.8	-48.9	49.2
	Land prices	148.5	-77.8	176.0
Cork	House prices	53.1	-42.7	23.5
	Land prices	100.1	-70.5	73.1
Galway	House prices	43.0	-52.1	24.5
	Land prices	77.5	-88.5	167.9
Limerick	House prices	53.8	-26.4	-17.3
	Land prices	131.2	-51.6	-49.0

**Source:** Own calculations.

From the table, the considerable variation in Irish house prices is readily apparent. During the period of the Celtic tiger, house price increases in the Irish market were substantial and, as noted in a number of cross-country studies (McQuinn (2017)), were the largest for the period amongst OECD countries. Equally, during the global financial crisis (GFC) downturn (2007 – 2012), the fall in Irish house prices was the most severe even when compared with that in the United States and Spain. In the post GFC period, even by 2017 house prices have recovered in the Irish market in a substantial manner.

Notwithstanding the variability in house prices, it is evident that over the period in question, land prices have experienced greater fluctuations. In the Celtic tiger period house prices in Dublin, for example, increased by 72 per cent while they declined by nearly 49 per cent during the GFC period. Finally, in Dublin between 2012 and 2017 prices increased by a sizeable 49 per cent. The comparable changes for land prices were 148.5, -77.8 and 176.0 per cent respectively. Therefore, it is clear that land prices experience greater volatility in the Irish market than house prices. This pattern is replicated across Cork, Limerick and Galway.

To further estimate the degree of volatility, we estimate the coefficient of variation for the three different series. The coefficient is a standardized measure of dispersion of a probability distribution which is defined as follows:

$$CV_{it} = \frac{\sigma_{it}}{\mu_{it}} \quad (3)$$

where  $\sigma_{it}$  is the standard deviation of the distribution in question and  $\mu_{it}$  is the mean of the associated series. The coefficient of variation is useful because, in comparison with the standard deviation, the actual value of the CV is independent of the unit in which the measurement has been taken, so it is a dimensionless number. Therefore, for comparison between data sets with widely different means, the coefficient of variation is preferable to the standard deviation. The greater the CV the more variable the underlying series.

**Table 4:** Coefficient of variation for house prices and land prices: 2000 – 2017

Region	Variable	Mean	Standard Deviation	Coefficient of Variation
Dublin	House prices	€338,886	€75,553	0.22
	Land Prices	€42,357	€19,999	0.47
Cork	House prices	€259,934	€54,245	0.21
	Land Prices	€28,000	€12,614	0.45
Galway	House prices	€242,407	€63,529	0.26
	Land Prices	€24,426	€15,081	0.62
Limerick	House prices	€216,769	€44,888	0.21
	Land Prices	€18,987	€10,271	0.54

**Source:** Own calculations.

Again, from Table 4 it is evident that land prices are somewhat more variable than that of house prices across the different Irish regions. Typically, across Irish cities the coefficient of variation for land prices tends to be almost twice as large as that for house prices signalling a significantly higher degree of variation.

#### *Update post 2017*

Unfortunately, the underlying data series used to generate house building costs – the house price rebuilding index has been discontinued and has not been updated past 2017 quarter 2. We now seek to extrapolate the series forward to the present and consequently update both the actual cost of rebuilding a house and the residential land price series. To do this we use data from the Central Statistics Office (CSO) on industrial price index for construction costs associated with materials and labour. This is

available from 2005 to the present. We run a regression model of the log of the house building index on the log of this industrial price index over the period 2005 to 2017 using quarterly observations.

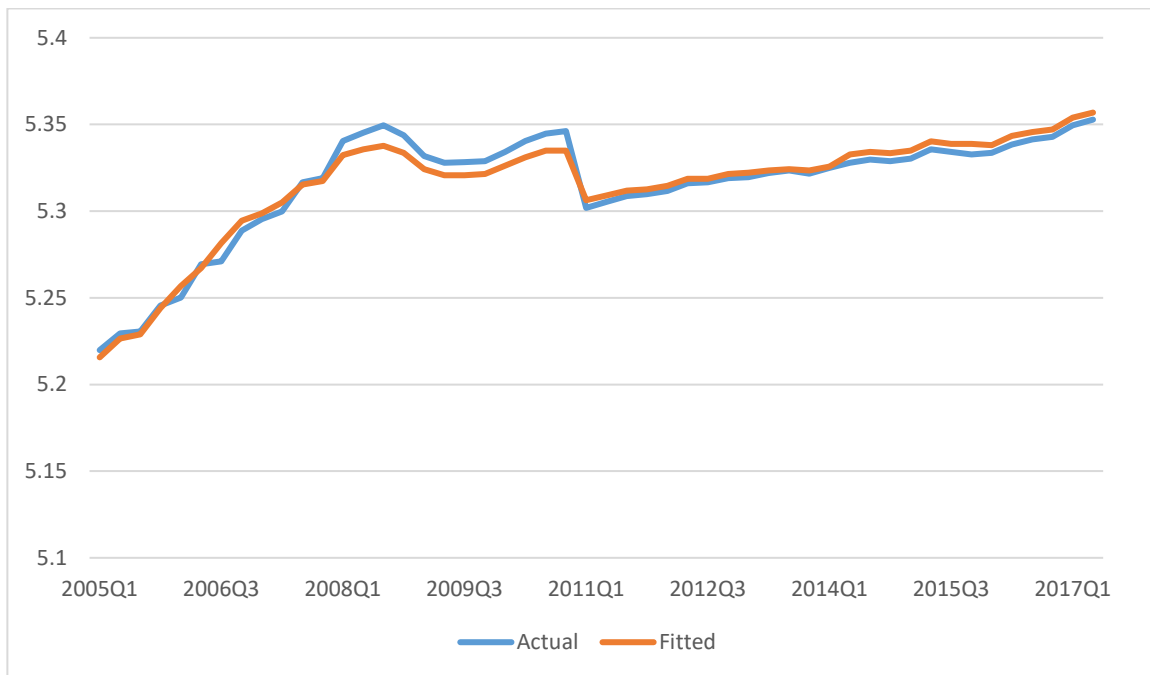
**Table 5:** Regression model of the log of house building costs on the log of industrial price index: 2005 – 2017

Dependent variable	Log of house building index	
Variable	Estimate	T-Statistic
Constant	1.682	17.96
Log of industrial price index	0.769	38.787
$\overline{R^2}$	0.968	

**Source:** Own calculations.

The actual and fitted value for the house building index are presented in Figure 7 below

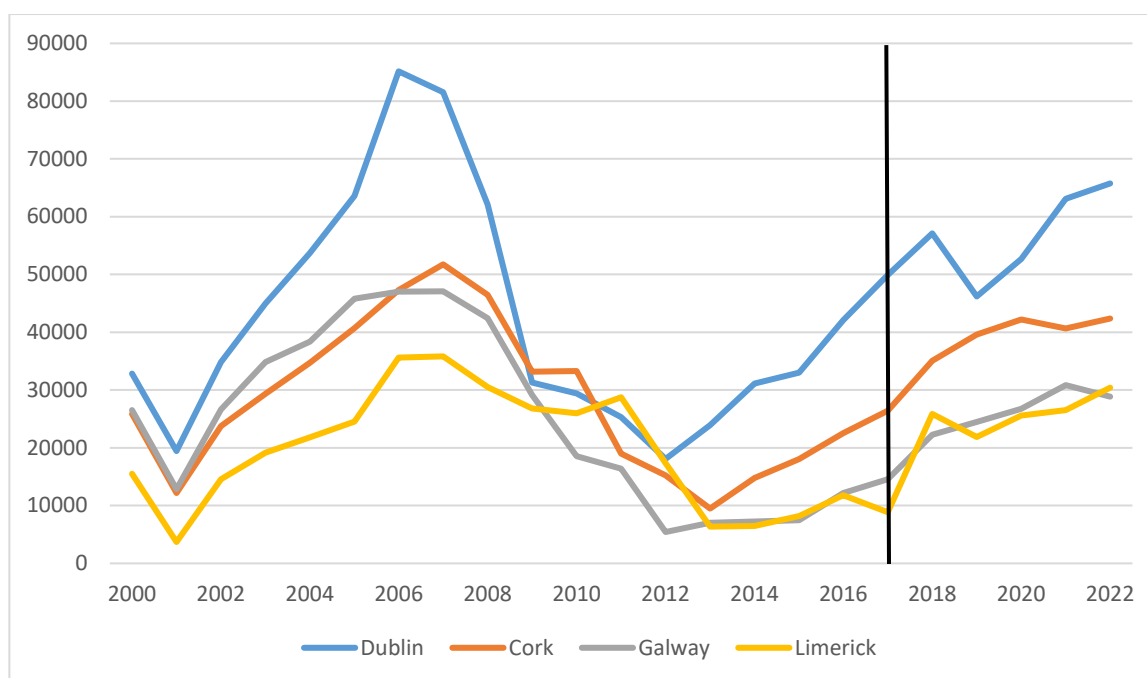
**Figure 7:** Actual and fitted value (logs) of house building index: 2005 – 2017



**Source:** Own calculations.

Over the period, it can be seen that the model tracks the actual data quite well. Therefore, we now update the house building index post 2017 quarter 2 with the forecasts of the model based on the estimates in Table 5 using the actual data for the industrial price index for the 2017 – 2023 period. The results are presented in Figure 8 below.

**Figure 8:** Estimate of select Irish cities residential land market price: 2000 – 2022 (€)



**Source:** Own calculations.

The updating exercise clearly demonstrates that land prices have continued to increase post 2017 and while they are not back yet to the peak level experienced during the Celtic tiger period, it is evident that they have increased quite significantly over the past 5 years. By the end of 2022, land prices in Dublin were 81 per cent of their previous peak value (in 2006), while land prices in Cork and Limerick were 82 and 85 per cent of their previous highest levels (in 2007). Interestingly, the land market in Galway is still somewhat off its previous peak with 2022 prices only 61 per cent of those that pertained in 2007.

### *Comparison with agricultural land prices*

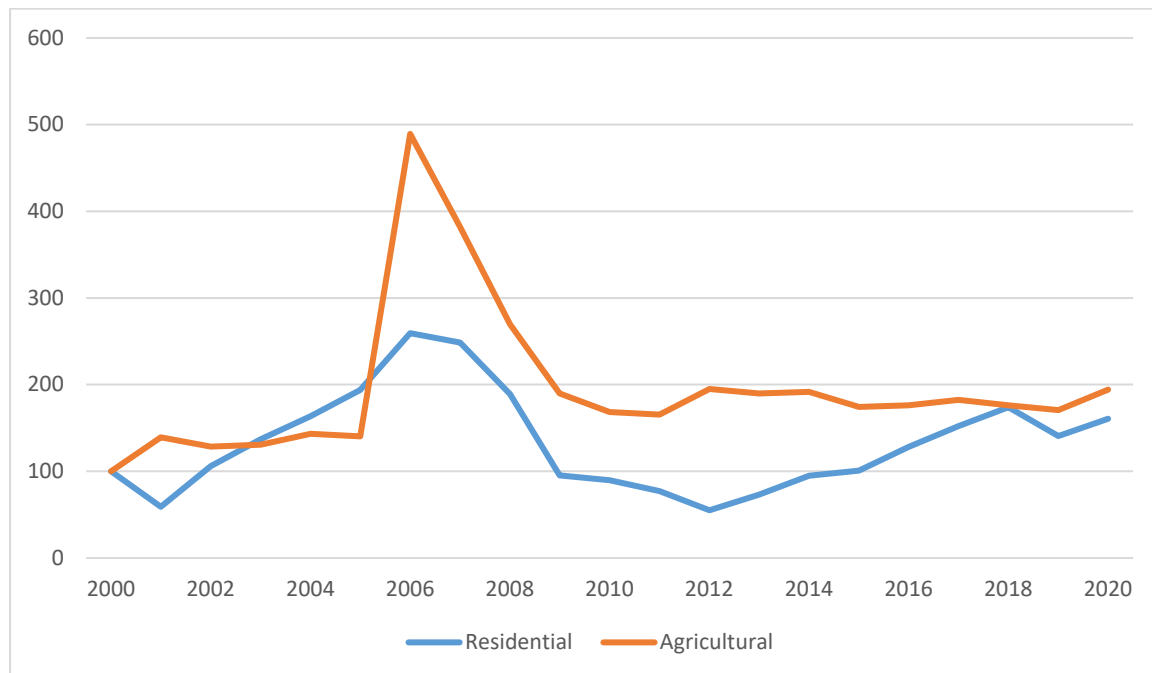
The IPAV (Institute of Professional Auctioneers and Valuers) produce a series on agricultural land values. These date from 1901 to 2020 and are on a per acre basis.<sup>9</sup> They are compiled from a number of sources including a CSO series on agricultural land values, the Journal of Agricultural Land Price summary and the Irish Farmers Journal. In order to examine the relationship between agricultural land values and residential land prices, both series are expressed in index form and are plotted from 2000 to 2020.<sup>10</sup>

<sup>9</sup> The data can be obtained from [https://www.ipav.ie/sites/default/files/land\\_prices\\_in\\_ireland\\_1901\\_to\\_2020.pdf](https://www.ipav.ie/sites/default/files/land_prices_in_ireland_1901_to_2020.pdf)

<sup>10</sup> It would be preferable to compare the residential land price with a current asking price for agricultural land, however no such official series is available for agricultural land values.



**Figure 9:** Comparison of Dublin residential land market price and agricultural land price: 2000 – 2020 (Index, 2000 = 100)



**Source:** IPAV and own calculations.

The trends in the two series can be compared. Both experienced an increase in the period leading up to the great financial crisis. Agricultural land prices experienced a very sharp increase in 2006 and 2007 possibly influenced by the surge in house prices at the time. Some prospective agricultural landowners may have felt there was possibility that agricultural land could be rezoned for residential purchases. After 2007, agricultural land prices did fall sharply, however, they were relatively stable from 2009 on, whereas the residential series kept falling until 2011 and started to recover thereafter.

***Concluding thoughts***

The absence of a series on land costs is a significant data gap in any housing market, however it is especially pertinent in the Irish case where the domestic residential sector has been subject to particular volatility over the past 25 years. Amongst other considerations, the absence of land prices prevents a complete characterisation of the determinants of the supply-side of the housing market. This issue is acute in the Irish case where the absence of a significant supply response following the great financial crisis has resulted in a significant increase in both house prices and rents.

In this paper we avail of one of the two most popular approaches to estimating residential land prices; namely, we calculate land prices as the difference between the actual house price in the market and the cost of rebuilding the property. Our estimates reveal that while Irish house prices were particularly volatile over the past 25 years, land prices exhibited even greater degrees of fluctuation over the same

period. Land prices increased at a faster pace than house prices during the Celtic tiger period and fell to a greater extent in the aftermath of the global financial crisis. Since 2012, land price inflation has again outpaced that of house prices. It is clear that on a regional basis, the Dublin property market exhibits greater volatility in both house prices and land prices than the other cities examined. The Dublin market also registers larger increases in value during periods of economic growth and more substantial contractions in prices during downturns.

Such underlying volatility in a key component of the supply-side of the residential market is somewhat concerning from a policy perspective as considerable variation in a key input in the supply of housing inevitably has implications for the provision of housing over the medium-term. Speculation in the residential land market has been cited<sup>11</sup> as a contributor to the ultimate price of development land, although in the absence of an official land price series this has been impossible to assess empirically. Nonetheless, at present there are now a number of different State agencies engaged in the provision of housing (approved housing bodies, the land development agency (LDA) and local authorities) as well as private developers. This suggests that greater regulation and oversight of the Irish land market is necessary to ensure that competition for land will not exacerbate fluctuations in land prices and house prices by extension.

Finally, it is highly desirable that the estimate of residential land prices presented here would be corroborated against estimates of land prices using data on transaction costs – the other popular approach in the literature to generating land prices. This would act as a robustness check on what is a crucial input in the supply of housing.

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<sup>11</sup> Sweeney (2022) addresses the issue of land in residential construction in Ireland in some detail.

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