ESRI Research Note

Housing Supply and House Price Trends: a County Level Analysis

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1. Introduction

Developments in the housing market and in particular the availability and affordability of both owner-occupied and rented housing have been a topic of significant discussion over the recent past.[2] Purchase prices for housing nationally have increased by 35 per cent since early 2013,[3] while rental prices have increased by almost 20 per cent since early 2012,[4] impacting on the affordability of housing. While higher prices affect all households, they have the biggest proportionate impact on those with lower incomes. Although not a complete measure of housing need, the waiting lists for social housing maintained by local authorities indicate a significant increase in the number of households unable to secure accommodation in the market.

These trends are a function of the demographic demand for housing, the supply of housing, and incomes. Previous research has shown that the number of households nationally is likely to increase by 20,000 each year over the next 15 years, and that this, when combined with the need to replace obsolete dwellings, would require an additional 25,000 dwellings per year (Duffy et al., 2014). Accounting for an overhang of vacant stock reduces these numbers slightly. Moreover, in high demand areas such as Dublin, there was little available vacant stock (see Morgenroth, 2014a,b).

The number of completed dwellings has been averaging just over 2,500 units per quarter since 2013,[5] which implies that increases to the housing stock are less than half of what is required. Thus, with underlying demographic demand significantly exceeding supply it is not surprising to find both purchase and rental prices increasing. A long-term solution to this problem requires significantly increased supply of additional housing.

1 This paper was prepared as part of a research programme funded jointly by the National Asset Management Agency (NAMA) and the Banking and Payments Federation Ireland (BPFI).

2 E.g. How do we fix the housing crisis? *The Irish Times*, 9/10/2015 or 'There's no bubble, but housing crisis will take time to fix'. *Irish Independent* 31/1/2016.

3 Based on data from the CSO Residential Property Price Index.

4 Based on data from the PRTB Rental Index.

5 Based on data from the Department of the Environment, Community and Local Government, Housing Statistics.

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The need for additional dwellings is not evenly spread around the country. Morgenroth (2014a,b) estimated that 60 per cent of the required additional housing would be needed in Dublin, with the bulk of the remaining need being concentrated in the Dublin commuter belt including Kildare, Louth, Meath, Wicklow, and the other larger cities (particularly Cork and Galway). Thus, current levels of housing completions nationally would barely meet the need for additional housing in Dublin.

These regional differences suggest that an analysis of housing supply at the county level is more meaningful than an analysis at the national level, as this would not identify housing pressures in specific areas. This note provides an analysis of housing supply and prices at the county level. It focuses on the more recent period, but some analysis is also carried out over a longer period. Also, given the identified housing pressures in Greater Dublin, Cork and Galway, trends in these areas are considered specifically.

As housing completions arise at the end of a process encompassing planning permissions and construction commencements, data on these key stages of the construction cycle are also considered here. Furthermore, given the slow response of housing supply to the substantial increases in prices, this relationship is analysed. Data for the supply cycle variables, planning permissions, commencements and completions are taken from the CSO database on planning permissions and the Department of the Environment, Community and Local Government, Housing Statistics. These provide data for individual local authorities. Unfortunately, neither the CSO nor the Department of the Environment, Community and Local Government publish house price data at the local authority level. A consistent series of county level house prices was constructed using both the ESRI/PTSB House Price Index and the quarterly reports on asking prices from the online sales and letting portal Daft.ie. While the ESRI/PTSB data relate to the average actual prices, the Daft.ie data are for asking prices for three-bedroom semi-detached houses.[6]

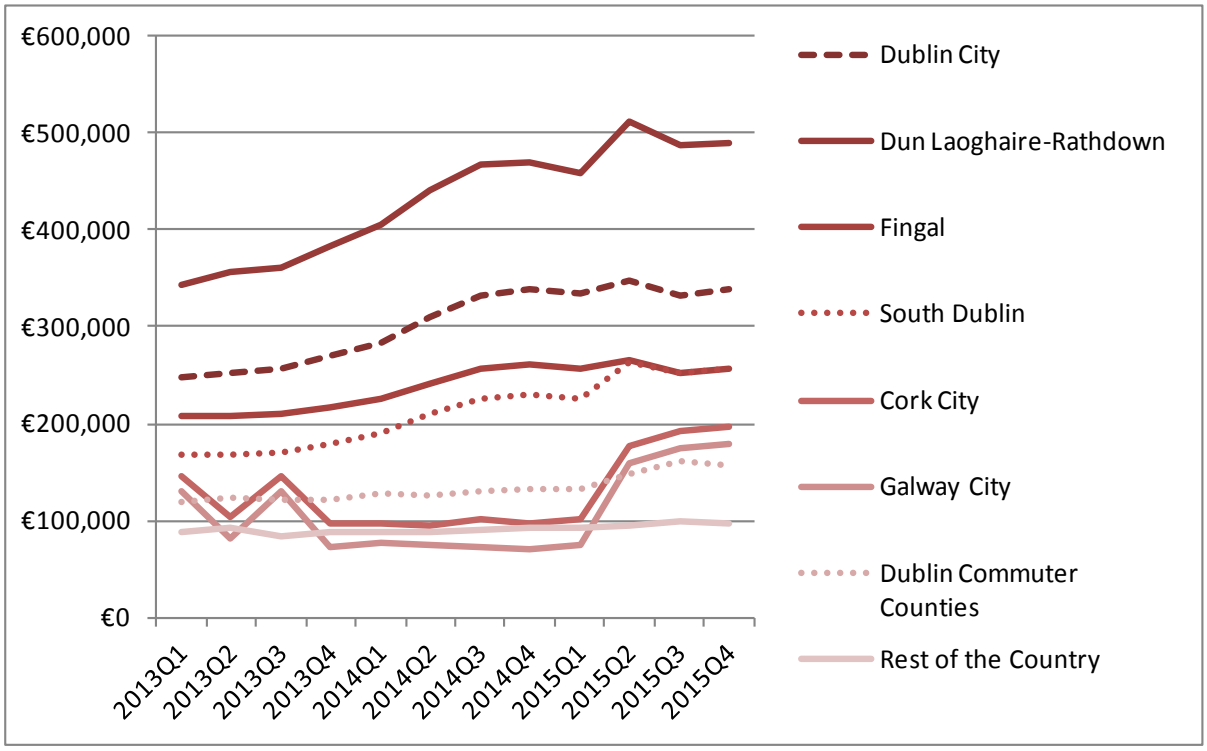
The note is organised as follows. Recent house price trends are considered in Section 2, supply trends are outlined in Section 3 and Section 4 considers some evidence on the causal relationship between prices and supply. Section 5 offers some conclusions

[6] The correlation between the Daft.ie asking prices for Dublin and the residential property prices for Dublin published by the CSO is very high (between 0.89 and 0.99 depending on the part of the city), and the asking price of three-bedroom semi-detached houses is highly correlated with both that of one-bedroom apartments (correlation coefficient of 0.95 for North Dublin) and larger five-bedroom detached properties (correlation coefficient 0.91 in North Dublin).

2. House Prices

House prices nationally have been increasing since early 2013. Figure 1 shows the evolution of house prices for the Dublin counties (i.e. Dublin City, Dun Laoghaire-Rathdown, Fingal and South Dublin), Cork City, Galway City, the Dublin Commuter Counties Kildare, Louth, Meath and Wicklow and the remainder of the country. The Figure clearly shows both the higher level of prices in the Dublin counties compared to the Rest of the Country. It also shows the more rapid growth over the period in the city areas and to a slightly lesser degree the Dublin Commuter Counties. Between the first quarter of 2013 and the last quarter of 2015 prices increased by more than 50 per cent in South Dublin, more than 40 per cent in Dun Laoghaire-Rathdown and more than 30 per cent in Dublin City, Cork City, Galway City and Dublin Commuter Counties. Fingal recorded lower price growth at just over 20 per cent while the mean price growth across other counties (Rest of the Country) was less than 10 per cent. Interestingly, the Greater Dublin region experienced steadily growing prices from early in 2013 but this trend stalled in the Dublin counties during the course of 2015. In Cork City and Galway City most of the increase in prices occurred during 2015, but this also slowed in the second half of 2015. There is less evidence of slowing price increases in Dublin Commuter Counties where, however, prices are lower than in the city areas. One explanation for this levelling off in prices might be the introduction of maximum loan-to-value and loan-to-income ratios by the Central Bank. This may put upward pressure on prices in surrounding counties where prices are such that loan-to-income ratios may not be a binding constraint for purchasers. This would give rise to a ripple effect that has been identified in previous research on housing markets in other countries (e.g. Meen, 1999; Ma and Chunlu, 2013; Tsai, 2014).

FIGURE 1 House Prices, Quarter 1, 2013 to Quarter 4, 2015

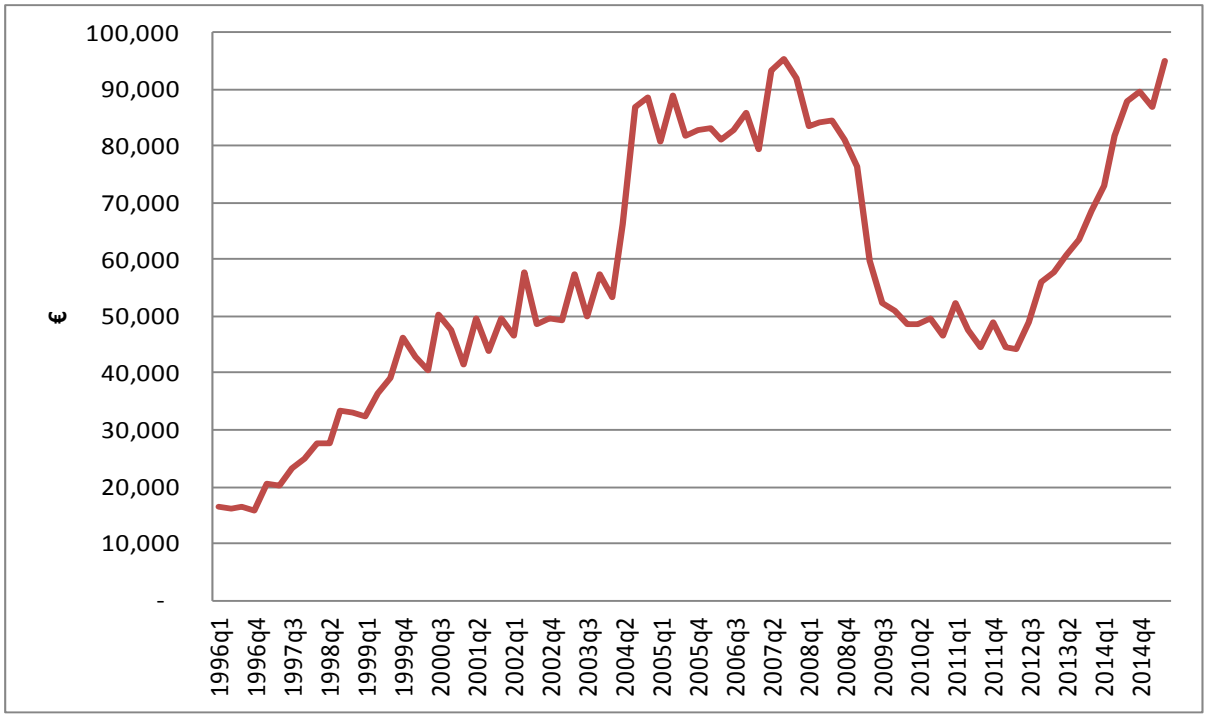


Source: The data are from Daft.ie. and refer to three-bedroom semi-detached houses. The figures for Dublin Commuter Counties and Rest of the Country are constructed as a simple mean of the respective counties.

Figure 2 shows that price levels across the country are diverging. The degree of house price dispersion across all counties can be measured by the standard deviation. Figure 2 shows this measure calculated across 32 local authorities over the period 1996 to 2015. This shows that the difference between the counties with the highest and lowest prices increased over the boom period, decreased sharply during the recession, and has increased significantly since 2011. The level of house price dispersion across counties is now as large as during the height of the housing boom.

During the housing boom this pattern resulted in many households choosing to purchase property outside of Dublin, which led to significant long-distance commuting. The combination of maximum loan-to-value and loan-to-income ratios and diverging house prices between the city areas and the Rest of the Country might result in similar purchasing patterns as during the boom period with increasing commuting distances and resulting unsustainable transport patterns.

FIGURE 2 Standard Deviation of House Prices across Counties, 1996 to 2015



Source: Own calculations using data from the ESRI/PTSB House Price Index and Daft.ie

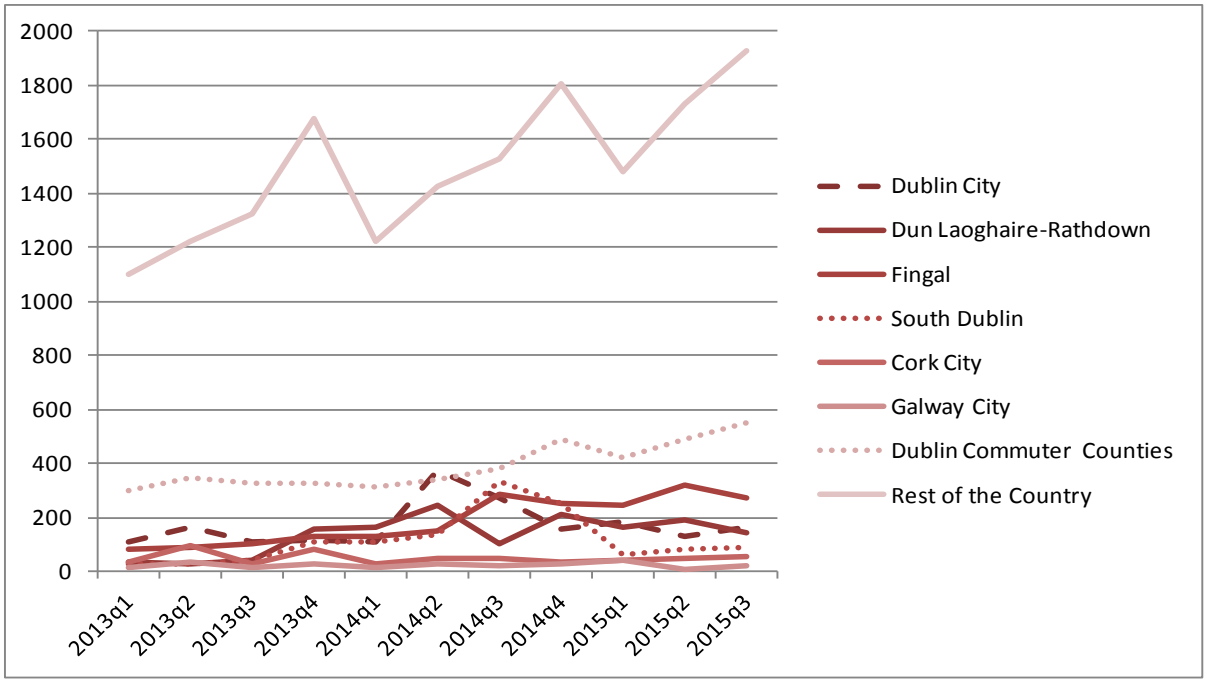
3. Housing Supply

Increasing prices are a result of demand exceeding supply of housing, which may be due to underlying fundamentals such as population growth or speculation. Housing completions are shown in Figure 3. The most striking feature of the graph is that completions in the Rest of the Country account for about 60 per cent of total completions. Total completions in Dublin have averaged just over 600 per quarter or less than 2,500 per year which is considerably less than the number needed to accommodate projected demographic change, which thus leads to an increasing undersupply in Dublin. The graph shows that completions have been increasing, but that this is concentrated in the Rest of the Country and Dublin Commuter Counties, and in the case of the city areas the increases are from an exceptionally low base. The number of completions has not been increasing in Cork City.

At the national level, quarterly housing completions peaked in the fourth quarter of 2006 when over 26,000 units were recorded as being completed. More recently (between Q1, 2013 and Q4, 2015) the number of quarterly completions was less than a tenth of that observed at the peak. Overall, completions over the recent period are only about 28 per cent of the long-run average (average from 1996 to 2015). At the county level, recent completions in Galway City only account for 12 per cent of the long-run average completions for that local authority, while that proportion was 19 per cent for Dublin City and 21 per cent for Cork City. In contrast Dun Laoghaire-Rathdown (63 per cent), Fingal (35 per cent), Kildare (35 per cent), Louth (32 per cent) and Wicklow (30 per cent) have

been recording levels of completion a little closer to their long-run averages. This suggests specific constraints to increased supply in city areas, which may encompass lack of development sites and/or higher development costs.

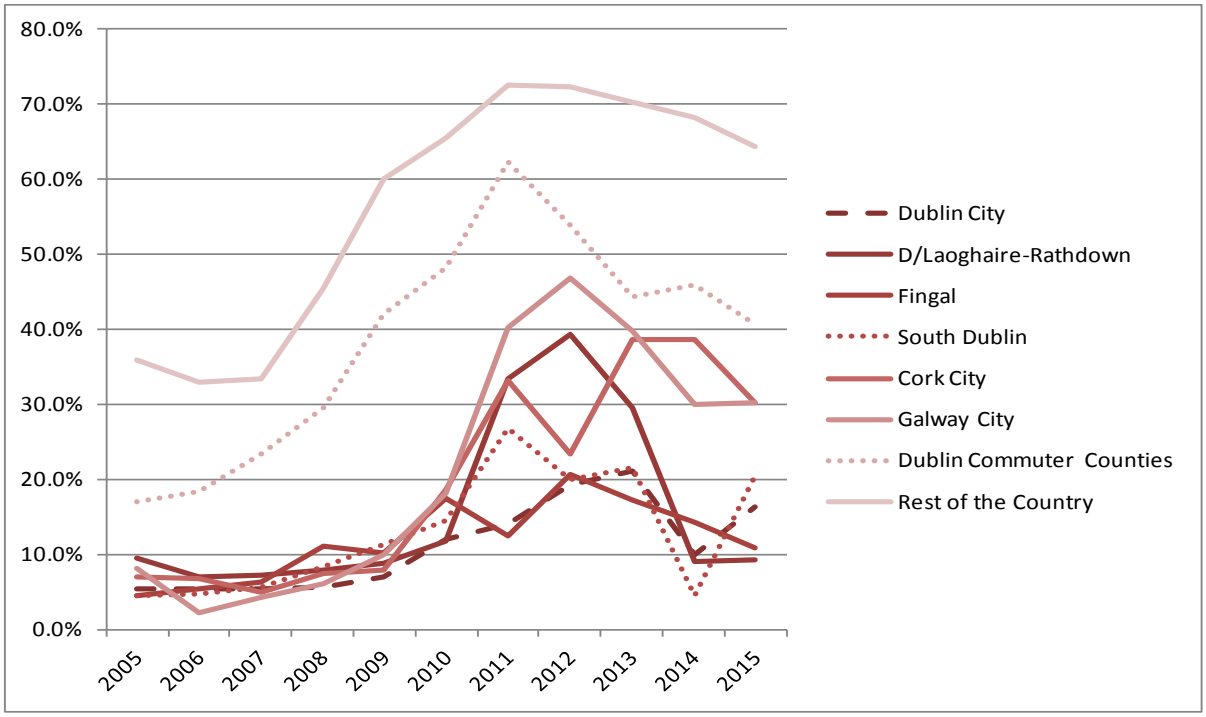
FIGURE 3 Housing Completions (No. Of Units), Quarter 1, 2013 to Quarter 3, 2015



Source: Department of the Environment, Community and Local Government Housing Statistics.

It is also possible to consider the type of properties that were completed using annual data. Figure 4 shows the proportion of the total number of completions accounted for by one-off houses. The graphs show that this proportion increased significantly in the wake of the economic crisis, reaching over 20 per cent in all Dublin counties and over 30 per cent in the other cities. In contrast the number of completed units accounted for by apartments or flats declined significantly. In the case of Dublin City this proportion declined from almost 80 per cent to less than 40 per cent. This indicates the decline of larger scale developments during the downturn. Up to now there is only limited evidence of an increase in apartment building, and the decrease in the proportion of completions accounted for by one-off houses is largely due to the construction of houses as part of a wider scheme.

FIGURE 4 Share of Annual Completions Accounted for by One-Off Houses, 2005 to 2015



Source: Department of the Environment, Community and Local Government Housing Statistics.

On average, completions account for about 84 per cent of the average number of planning permissions over the period 2001 to 2015. Thus, some 16 per cent of planning permissions are not converted into completions. Nevertheless, the data suggest that planning permissions are a useful indicator of future housing completions even though not all permissions will result in completions.

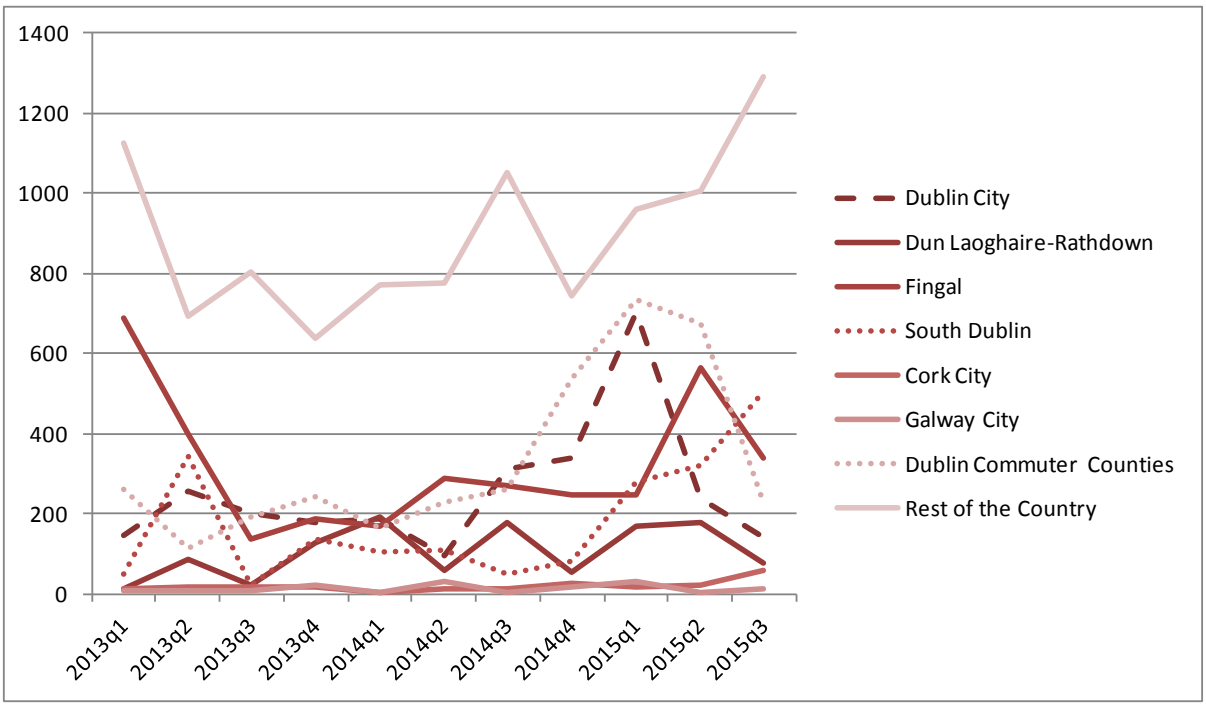
The peak number of units for which planning permission was granted during the boom was just under 29,000 units in the second quarter of 2005. Since then the number of units for which planning permission has been granted has declined significantly, averaging just over 2,000 units during the period 2013 to the third quarter of 2015, which represents just over 7 per cent of the peak level. This trend is also reflected in the Dublin counties and the other cities (see Figure 5). However, planning permissions declined more than the national average in Dublin City and Dun Laoghaire-Rathdown. More recently there are signs that the number of planning permissions is increasing nationally. In contrast in Cork City and Galway City planning permissions remain flat.

In relation to the composition of planning permissions, there is a slight downward trend in the proportion accounted for by one-off houses suggesting a gradual return of larger scale developments. The percentage of permissions (units) accounted for by one-off houses had increased in all Dublin counties and cities in the wake of the economic crisis, reaching as high as 100 per cent in South Dublin in the first quarter of 2012. The data show that the increase in the share of

planning permissions accounted for by one-off houses was due to the decline in multi-development houses and apartments which came to a virtual standstill. Planning permissions for apartments and flats hit a low of 114 in the second quarter of 2014 while planning permissions for multi-development houses were at their lowest in the first quarter of 2012. More recently the proportion accounted for by one-off houses has been at just over 10 per cent in Dublin City, less than 10 per cent in Fingal and South Dublin, but well above 10 per cent in Dun Laoghaire-Rathdown.

However, the low number of new planning permissions for apartments/flats over the recent period also indicates that supply of these types of units will not increase rapidly. In Fingal the average number of planning permissions granted for apartments or flats in the period 2013 to the third quarter of 2015 is less than a fifth of the average number over the period 2001 to the third quarter of 2015, and less in other counties.

FIGURE 5 Planning Permissions Granted (No. Of Units), Quarter 1, 2013 to Quarter 3, 2015

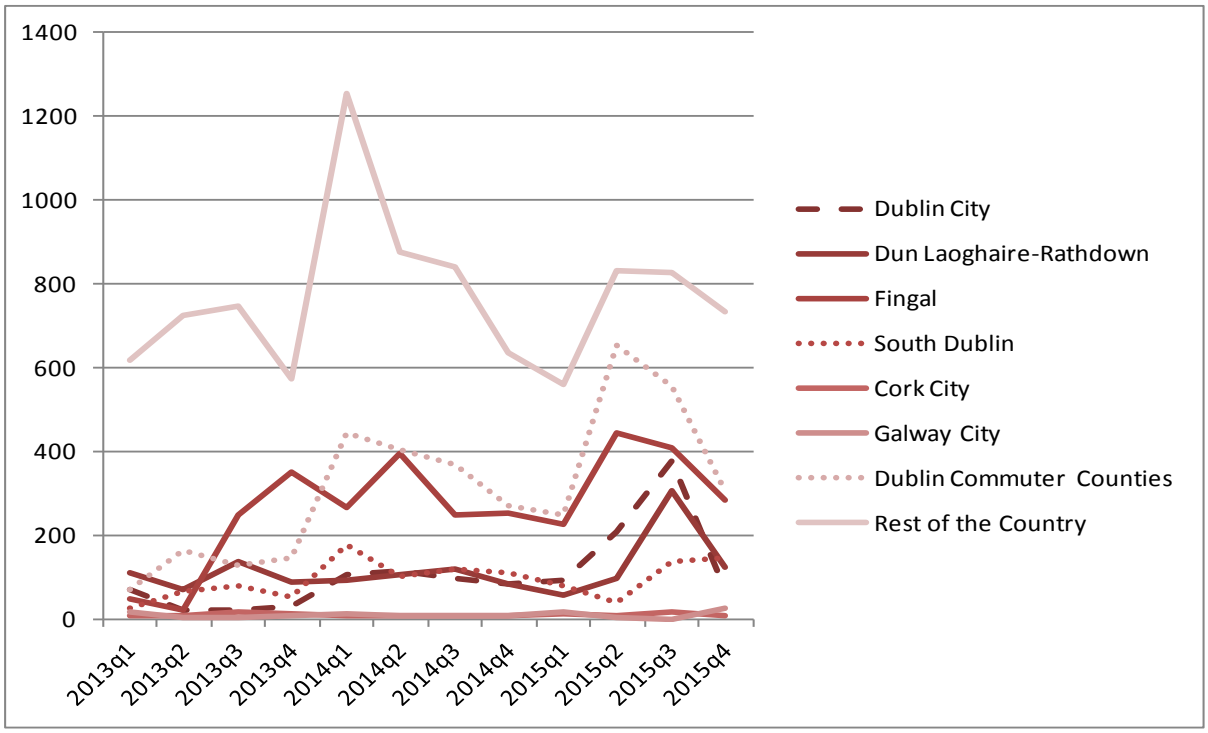


Source: Department of the Environment, Community and Local Government Housing Statistics.

The final supply variable considered here is the number of construction commencements. These peaked in the second quarter of 2006 while completions peaked two quarters later. Over the more recent period since the start of 2013 commencements averaged at just over 7 per cent of the peak level. As for completions there is some evidence that commencements are increasing but that the total number remains very small, and they also appear to have dipped over the most recent quarters. Figure 6 shows the number of commencements for the

four Dublin counties and the other cities. The Figure shows the low level of commencements in all counties as well as the spike due to the methodological change for the data collection.[7] The graph shows that commencements have increased recently in Dublin City and Fingal, while there is no evidence of an increase in the number of units on which construction has commenced in other counties and cities. Thus, one can expect an increase in the supply of housing in Dublin City and Fingal as the units which have been commenced will be completed.

FIGURE 6 Construction Commencements (No. Of Units), Quarter 1, 2013 to Quarter 4, 2015



Source: Department of the Environment, Community and Local Government Housing Statistics.

4. Relationship Between Prices and Supply

A strong increase in prices is a clear sign that demand exceeds supply. However, increasing prices should also result in increased supply. While the analysis above suggests that there is some evidence of supply picking up, this descriptive approach cannot determine the causal temporal relationship between the variables.

One simple way to consider the relationship between prices and supply is to calculate the correlation coefficient between price and completions. Over the

[7] The data are now collected using the Building Control Management System (BCMS), whereas the data were previously collected from the Residential Commencement Notices received by Local Authorities. The data up to March 2014 recorded the commencement when the notice was received while the data for the subsequent period recorded the date of commencement as the date reported by the developer/builder.

period 1996 to the third quarter of 2015 the correlation between prices and completions was 0.62 at the national level. At the county level there are some differences with the correlation ranging from 0.76 down to 0.06, and there are also differences across time periods. The positive correlation coefficient might suggest a positive response of completions to an increase in prices. However, the significant drawback of a simple correlation coefficient is that it cannot identify the direction of causality i.e. a positive correlation between prices and completions might be due to a price response to change in completions rather than a response of completions as a result of increases in prices.

A widely used approach to analyse the inter-temporal relationships between variables is to utilise so called vector autoregressions (VAR), where each variable is modelled as a function of current and lagged values of all variables of interest.[8] This approach can be used to determine whether variables change in response to each other. It thus overcomes the shortcoming of the correlation coefficient in that it is able to identify the direction of causality. Formally, if a variable helps in predicting the other it is said to Granger-cause the other variable.

Applying this methodology yields some interesting results.[9] When analysed across all counties there is strong evidence that an increase in prices causes an increase in completions i.e. there is a supply response. This finding holds for estimates calculated over the 1996 to 2015 period and also the sub-periods 1996 to 2006 and 2007 to 2015. However, different results are found for county sub-groups. Specifically the results for Dublin and Dublin Commuter Counties indicate that particularly in the 2007 to 2015 period, completions do not respond to price changes.[10]

This is an important but counterintuitive result, which suggests that other constraints are preventing supply from increasing. Price increases may not have been sufficient to make developments in Dublin profitable, perhaps because of higher construction costs,[11] or because of planning regulations that add to costs. Developers may still find it difficult to raise credit for larger projects and indeed many may not be in a position to re-enter the market. Results from VAR models, where permissions and commencements are included in addition to prices and completions, show that the number of planning permissions responds positively to increases in the number of completions. This suggests that new developments

8 VARs gained their popularity following the work by Sims (1980).

9 This section draws on results from the forthcoming working paper Morgenroth, E., (2016) 'From Planning to Completion: A County Level Analysis of Housing Supply'.

10 In the case of the four Dublin counties and the four Dublin Commuter Counties the effect of prices on completions is not statistically significant at conventional levels both when estimated using the price level and the change in prices.

11 Construction costs for residential property in the Dublin area are roughly 50 per cent higher than in the North-West of the country (Chartered Quantity Surveyors, 2015).

are financed with the proceeds of completed developments and that developers are currently reluctant to initiate concurrent developments, which would indicate a risk averse position. Finally, the lack of a supply response due to the increased prices may also be due to the expectation of even higher prices in the future, which would lead to land hoarding.

5. Conclusion

This note has shown that while house prices overall have been increasing and there has been some evidence of growth in housing supply, the trends vary significantly across the country. The dispersion of house prices across Irish counties is now as great as it was during the height of the boom. The economy of Dublin was less affected by the recession than other regions and has recorded growth in key variables. Real per capita gross value added in Dublin was 10 per cent higher in 2014 than in 2007, and with respect to other indicators Dublin is closer to the peak levels than most other regions. Strong employment growth, a reduction of the numbers unemployed and income growth have added to the demand for housing in Dublin.[12] The price differential coupled with new loan-to-income limits could force households to seek housing outside of Dublin and to commute longer distances, repeating trends during the boom.

A striking result is the lack of a supply response to increases in prices in the Greater Dublin region. This raises questions about the constraints that prevent normal market responses. The analysis here does not shed any light on the causes. A recent review of the international literature on housing supply policies highlights that key policies that might reduce housing supply are planning regulation, infrastructure costs and inappropriate taxation (Morley et al., 2015).

Additionally, despite the price rises the Dublin market may still not be profitable for developers. There may be a lack of suitable development land available or developers might be hoarding land for future development given the likely higher price and therefore profit that will be available in the future. Developers might also face financing constraints. In this respect it is noteworthy that a causal relationship from completions to planning permissions exists, which might suggest that the receipts from completed developments are needed to commence the planning of new developments.

[12] According to the CSO Quarterly National Household Survey, the unemployment rate in Dublin was just 8 per cent in Q3, 2015, compared to the national rate of 9.3 per cent. The CSO Live Register statistics also show that the numbers signing on in Dublin had reduced by one-quarter since peaking during the recession. CSO County Income Statistics also show that Dublin was the only county where total incomes increased in 2011.

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