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Identifying rent pressures in your neighbourhood: a new model of Irish regional rent indicators

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Abstract: Since 2013, researchers in the Economic and Social Research Institute (ESRI) have compiled a hedonic rental index for the Residential Tenancies Board (RTB). The indicator estimates a standardised rental index on a national, Dublin and outside of Dublin basis based on the 950,000 rental properties registered with the RTB. The provision in late 2016 of detailed geographical identifiers has enabled an alternative series of indicators to be estimated. In particular, hedonic rental indicators for 137 local electoral areas (LEAs) are now available on a quarterly basis from 2007 quarter 3 to 2016 quarter 4. By providing a more accurate assessment of regional trends in rental supply and demand, the indicators should enable a more precise implementation of policies in the rental market. They should also serve as a proxy for measuring underlying economic activity in these regions on an ongoing basis.

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1. Introduction

Accurately capturing developments in a national rental market is important for a number of reasons; the cost of accommodation is a key indicator of competitiveness, especially in an open economy such as Ireland's, while the relationship between property prices and rents can serve as a highly useful indicator of sustainability of housing market developments and more broadly financial stability. Capturing rental trends at a granular regional level not alone offers the possibility of understanding the different housing markets which exist across the country but can ultimately provide an overview of the disparate economic conditions which may prevail at a sub-national basis. Ultimately, movements in the supply and demand of rental properties within a particular market will be closely aligned to the related regional economic circumstances, therefore, local rental indicators can help provide a timely assessment of regional development.

Since October 2012, researchers in the ESRI have produced, on a quarterly basis, a measure of rents for the Residential Tenancies Board (RTB). The rental index generated is for every private rental property registered with the RTB which numbers approximately 950,000 properties. The measure, which covers rents on a quarterly basis from 2007 quarter 3 to 2016 quarter 4, has until now been estimated for three regions; nationally, the Dublin area and outside the Dublin area. The index is also broken down for these regions on the basis of rental pressures for houses versus apartments.

In December 2016 the RTB approached the ESRI with a request to explore the possibility of generating rental indicators at a more granular regional level. Following receipt of detailed regional information which enabled the local electoral area (LEA) location of the individual property to be identified, a series of rental indicators for each LEA over the period 2007 quarter 3 to 2016 quarter 4 is now available. In this paper we present the new model used to generate these indicators and we summarise the results for the indicators over the period 2007 quarter 3 to 2016 quarter 4 noting particular trends in the cross-sectional variation of rental movements over the period. We also compare the results for the new model with the approach used to generate the existing RTB index. On an aggregate, national basis, there would appear to be little difference between the two sets of results. Finally, we comment on the potential usefulness of these new

indicators in addressing regional issues.

The main policy motivation for developing regional rental indicators is the decision by the Irish Government in late 2016 to introduce "rent pressure zones" (RPZs). In these designated zones, the pace of rental increases will be restricted to 4 per cent per annum. As of 2017Q1 all of Dublin, Cork and Galway cities along with 23 other towns have been designated RPZs. The empirical criteria used to identify whether an LEA qualifies as an RPZ are the following:

1. the LEA has to have an annualised growth rate in excess of 7 per cent for 4 of the last 6 quarters,
2. and the LEA's average standardised rent must be above the national average.

Therefore, the rental indicators generated are formally used to assess these criteria.

Much of the reason for introducing the RPZ policy can be traced to developments in the Irish rental market since 2013. The period 2007 - 2016 saw significant change in the Irish housing and rental market with prices and rents declining sharply post the international financial crisis of 2007/08 before stabilising and then increasing strongly from 2013 onwards. The increases post 2013 reflect the swift turnaround in Irish economic activity as the country emerged from a protracted downturn between 2007 and 2012. Irish economic activity declined by 12 per cent[1] during this period with unemployment increasing sharply from 4.7 to 14.7 per cent. However, since 2013, the Irish economy has recovered strongly, resulting in a substantial increase in housing demand. The supply-side of the market has, as is often the case after a substantial crash, been much slower to recover. Consequently, with demand outstripping supply, house prices and rent levels have, since 2013, grown by 46 and 29 per cent respectively.[2]

The rest of this paper is organised as follows; in the next section we outline the existing approaches used to model the Irish rental sector. The new model, incorporating the regional information is then presented, and the results of both the existing and new approaches are then discussed. Results for the Irish rental market revealed by the greater regional distribution of rents are also discussed, while a final section offers some concluding comments.

[1] Real GDP fell by 12 per cent between 2007 and 2012.
[2] In nominal terms.

2. Models of Irish rental levels

2.1. Data

The Residential Tenancy Board (RTB) was established in 2004 on foot of the Residential Tenancies Act (RTA). The RTB is an agency of Government with statutory powers. The central role of the RTB is to support the rental housing market and to resolve cheaply and speedily disputes between landlords and tenants without having to resort to the Courts.

Every quarter, the RTB publishes a rent report for the private accommodation sector in Ireland. Compiled by the Economic and Social Research Institute (ESRI), and based on the RTB's own register of tenancies, the Rent Index reveals the actual rents being paid for rented properties. As of quarter 4 2016, the RTB's register contains details of over 325,372 tenancies. Every year, the RTB registers approximately 100,000 new tenancies, with annual peaks in activity in September/October.

The database is the largest in the country and is populated with information on actual/agreed rent, location, six categories of dwelling types, accommodation size and number of occupants and tenancy length. The Rent Index is backdated to quarter 3, 2007. Under the Act, landlords can register a tenancy up to 1 month after the tenancy commencement date. To reflect this and to provide the most accurate report possible, the data underpinning the Rent Index is extracted five weeks after the end of each quarter.

Since 2012, the RTB and ESRI have estimated rents on a quarterly basis across three categories: nationally, Dublin, and outside of Dublin. Legislation enacted at the end of 2016 requires the RTB and the ESRI to include more localised geographical information, based on Local Electoral Area level, to adjust the Rent Index accordingly.

2.2. Modelling approaches

The existing RTB index (PRTB (2013)) is constructed following the practice of the Central Statistics Office when constructing the Residential Property Price Index and uses a "rolling" time dummy hedonic regression model. The rent index is constructed using quarterly time dummies. In each regression a dummy variable is added for the most recent quarter and the "oldest" time dummy is dropped. This is a variant of the time-

dummy method and has the advantage of keeping the coefficients relatively up-to-date while still using pooled data. Thus, the implicit price for each characteristic varies over time. However, the approach requires large amounts of data and so may become unreliable if the volume of transactions becomes very low. In addition the need to run a regression for each time period is time-consuming, particularly if data is to be revised over a long time series. At present the model is run separately for three regions; the overall national market, the Dublin market and the non-Dublin national market. Accordingly, there are enough observations to run the model on this basis.

For the new index, on the other hand, an alternative approach is required whereby the model is estimated over the entire time period (2007 quarter 3 to 2016 quarter 4) and time dummy variables are then included in the hedonic regression to capture the change in the index for each LEA. It is necessary to conduct the estimation in this manner as there are not enough observations for each LEA to run the model in the rolling manner as per the existing index. Given that a separate dummy for each LEA for each quarter is estimated this necessitates an additional (38 * 137 = 5,206) variables in the model. However, the model can cope with this as using the entire sample results in approximately 950,000 observations. Other than these LEA dummies, the new model has all of the other variables currently in the existing model. Consequently, the new model also includes the following controls for the property characteristics:

- Property size (1, 2, 3, 4 or 5 bedrooms);
- Property type (detached house, semi-detached house, terrace house, apartment, part-house, other);
- Length of tenancy (1 to 6 months, 7 to 9 months, 10 to 12 months, over one year);
- Number of tenants (1, 2, 3 or 4 tenants);
- Frequency of rent payment (fortnightly, monthly; quarterly or annual);
- Presence of a third-level institution (dummy variable equal to 1 if third-level in local authority area).

In the case of both models the reference property type is a 2-bedroom apartment, 1 tenant, 10 to 12 month lease, rent paid monthly in a region without a third-level institution.

With the new model, the characteristic variables capture the changing mix of properties between time periods while the time dummies capture changes in the price or rent of a constant quality representative dwelling. A mix adjusted index is then calculated based on the time dummy coefficients. An assumption of this approach is that the implicit price of characteristics remains constant over time.

Crone and Voith (1992) and Conniffe and Duffy (1999) refer to the difference between the models used for the existing and the new index as the hedonic model and the constrained hedonic model. The model estimated for the new index is constrained in that the implicit prices for the different characteristics are not allowed to change over time. Gatzlaff and Ling (1994) on the other hand refer to the strictly cross-sectional as opposed to the explicit time-variable model.

The methodology generates an index of rent growth. To estimate current standardised rent levels in each LEA (i.e. rent levels that take into account the different composition of rental properties), we apply the growth rate generated by the model to an initial average value of rents in each LEA. These are compared to a national average rent generated on the same basis.

3. Summary of results

Table 1 compares the model output relating to property characteristics from the new model and an example from the published model which is described in detail in PTRB (2013). Apart from the differences in the level of detail on locations and time effects, the variables relating to property level characteristics used to generate the results are the same in both versions of the model.

The sizes of the estimated effects for each characteristic are quite comparable overall. The property characteristics have the expected effect signs, with larger properties and more tenants associated with higher rents. Non-standard lease lengths (i.e. different from one-year agreements) tend to be associated with lower rents. One difference of note between the new and old versions of the model is that the previous model did not find that rents were systematically higher for detached or semi-detached houses compared to apartments once the size of the property was controlled for, whereas the new model finds that there are higher rents for houses compared to apartments over

and above property size.

As described above, the new version of the model uses a considerable amount of additional information in relation to location detail by using LEAs rather than broad region and allows for different time trends for each LEA. As a result, we note that the explanatory power of the new model is quite substantially higher than the previous version, with 68 per cent of the variation in rents being explained according to the R-squared statistic.

Although there are some differences in the estimation approach between the previously published model and the new version incorporating more detailed location information, the overall path of the national rental index for both approaches are very similar. Figure 1 plots the national index of rents with the two different approaches. While the index generated with the new model shows a slightly more rapid decline in rents at the start of 2008, from 2012 onwards, the two indices overlap almost completely. Other key statistics between the two different rent indicators are very similar. For example, both indicators had a peak value in 2007 quarter 4, while the trough or lowest point was in 2012 quarter 1. The percentage fall from peak to trough in the case of the new (LEA) and existing models was 33 and 34 per cent respectively. In Figure 2, we plot the year-on-year growth rates for the new and existing models. It is evident from the graph that both approaches yield very similar results.

In Table 2 we summarise the results of the index for both the new (LEA) and existing approaches along with the corresponding year-on-year and quarter-on-quarter growth rates. According to the new index, overall rents increased by 7.8 per cent year-on-year for 2016 quarter 4, which was up marginally on the 2016 quarter 3 year-on-year growth rate. On a quarterly basis, the index was up 2.78 per cent on its 2016Q3 level. In both cases, the index follows almost an identical path covering full U-shape from the starting base of 100 in 2007Q3 to reach a low of 76.12 in 2011Q1 for the LEA model and a low of 76.72 one quarter later for the original model. Both models show rents then recover steadily, returning to fractionally below 100 by the final quarter of data available in 2106Q4.

Table 3 reports the strength of recent rent growth at the LEA level in terms of the number of quarters where annualised rent increases have been greater than 7 per cent. It also shows how rent levels in each LEA compare to the national average. Rents in

Dublin and surrounding commuter counties are amongst the highest relative to the national average, with parts of Cork, Galway and Limerick cities also above average.

Given the large amount of regional information now available, an alternative way to present the results is through the use of "heat-maps". Figure 3 breaks down the LEAs by the annual growth rate of the standardised index for 2016 quarter 4, whereas Figure 3 plots the LEAs by the following three criteria:

1. whether the LEA has an annualised growth rate in excess of 7 per cent for 4 of the last 6 quarters,

2. whether their average standardised rent is above or below and the national average and finally

3. where both conditions prevail.

The purple areas in Figure 3 which are mainly centred around Dublin, Cork and Galway are those LEAS which experience both conditions (1) and (2). Table 4 reports summary statistics for the different LEAs across the period 2007 quarter 4 - 2016 quarter 4. The average value for standardised rents across the period was €760, with Glenties in Donegal registering the lowest rent (€277) and Stillorgan in Dublin experiencing the highest (€2062). From Figure 1, it is evident that that rents reached a trough in 2012 quarter 1; consequently, we split the overall period into before and after this quarter. Between 2007 quarter 4 and 2012 quarter 1, Waterford City-South experienced the most significant decline in rents (77 per cent fall from its highest rent pre 2012 to the 2012 quarter 1 level), while in the recovery phase, Crumlin-Kimmage experienced the most significant improvement (68 per cent increase between the 2012Q2 level and it's highest rent subsequently).

Finally in Figure 5 we plot both the coefficient of variation and the national rent (according to the LEA model) for the period. The coefficient of variation is a standardized measure of dispersion of a probability distribution or frequency distribution. It is defined as the ratio of the standard deviation to the mean. The measure is calculated across the 137 LEAs for each quarter over the 2007 quarter 3 to 2016 quarter 4 period. Initially, the coefficient indicates a decline in the dispersion of regional rents, however, from 2009 onwards, a clear increase in the heterogeneity of regional standardised rents occurs. It is interesting to compare the dispersion with the overall national

rent indicator. While the increase in the regional divergence of rents clearly predates the turnaround in national rents, it is evident that post 2011 the two are closely aligned. Similarly, the decline in regional divergence between 2007 and mid 2009 was also accompanied by a decline in national rent levels. Overall, therefore, a decline in national rents seems to correlate with a decline in the regional divergence of rents while an increase in rents, over the longer-term, is accompanied by a growing dispersion across the country.

4. Concluding comments

The sharp increases in the cost of accommodation are one characteristic of the recovery observed in the Irish economy post 2013. Irish house prices and rents have increased substantially over the period 2013 - 2016. Much of the reason for this increase lies with the slow response of the Irish construction sector with housing demand substantially outstripping supply.

In this paper we present a new model of the Irish rental sector. Using recently available granular data on the geographical identity of landlords in the private rented sector, we estimate standardised rental indicators for 137 local electoral areas across the Irish State. These indicators cover the period 2007 quarter 4 to 2016 quarter 4 and will be available on a quarterly basis going forward. Furthermore, these indicators will be central to future decisions concerning the designation of areas as rent pressure zones.

Inspection of these indicators over the period reveals the regional asymmetry in rental returns through the cycle. During the significant downturn in the market, all rents appear to fall to the same degree. However, when the market is in a recovery or growth phase, there is an increasing dispersion in rental levels.

Finally, the housing and rental literature[3] has long indicated a positive relationship between rent levels and proximity to an economic focal point. Therefore, an examination of rental levels available on a timely, granular, regional basis, can also provide a corresponding overview of changes in economic conditions at local levels.

[3] See Sirmans and Benjamin (1991) for an earlier review of the literature.

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Table 1: Comparison of Model Estimates

	Original model		LEA model	
	Coefficient	t-value	Coefficient	t-value
Intercept	6.689	1711.6	6.474	409.1
1 Bedroom	-0.219	-79.9	-0.214	-248.4
3 Bedrooms	0.089	33.7	0.113	138.6
4 Bedrooms	0.174	49.5	0.216	199.1
5 bedrooms	0.191	29.9	0.268	138.7
Detached	-0.047	-16.5	0.023	19.2
Semi-Det.	-0.056	-14.1	0.004	4.5
Terrace	-0.043	-14.2	-0.021	-22.9
Other Property	-0.346	-88.1	-0.321	-255.2
Part House	-0.155	-17.1	-0.211	-88.7
2 Tenants	0.052	26.8	0.044	74.2
3 Tenants	0.092	26	0.065	60.2
4+ Tenants	0.084	18.9	0.073	61.4
1-6 months tenancy	-0.036	-13.2	-0.027	-28.4
7-9 months tenancy	-0.064	-12.2	-0.072	-46.4
Over 1 year tenancy	-0.1	-37	-0.054	-73.1
Fortnightly rent	-0.09	-7.1	-0.027	-5.3
Yearly rent	-0.632	-13.2	-0.112	-41.5
Quarterly rent	1.063	114.5	0.344	38.0
Third level	0.432	135	0.039	26.7
Time dummy	Yes			
Region control	Yes			
Time * LEA			Yes	
Adjusted R-squared	0.524		0.679	

Table 2: Comparison of Model Results

	LEA model				Original model			
Period	Index	€	Y-on-Y	Q-on-Q	Index	€	Y-on-Y	Q-on-Q
2007Q3	100	988.09			100	988.09		
2007Q4	100.04	988.47		0.04	102.48	1012.63		2.48
2008Q1	99.67	984.82		-0.37	101.7	1004.88		-0.77
2008Q2	99.09	979.12		-0.58	101.15	999.44		-0.54
2008Q3	91.83	907.38	-8.17	-7.33	96.12	949.71	-3.88	-4.98
2008Q4	92.68	915.76	-7.36	0.92	95.54	944.04	-6.77	-0.6
2009Q1	88.33	872.76	-11.38	-4.7	91.14	900.58	-10.38	-4.6
2009Q2	84.54	835.35	-14.68	-4.29	87.4	863.61	-13.59	-4.1
2009Q3	81.15	801.8	-11.64	-4.02	84.1	830.94	-12.51	-3.78
2009Q4	79.06	781.22	-14.69	-2.57	81.23	802.61	-14.98	-3.41
2010Q1	78.12	771.9	-11.56	-1.19	80.35	793.97	-11.84	-1.08
2010Q2	77.73	768.05	-8.06	-0.5	80.13	791.73	-8.32	-0.28
2010Q3	76.88	759.65	-5.26	-1.09	79.19	782.48	-5.83	-1.17
2010Q4	77.5	765.75	-1.98	0.8	78.36	774.31	-3.53	-1.04
2011Q1	76.12	752.09	-2.57	-1.78	77.54	766.15	-3.5	-1.05
2011Q2	76.65	757.37	-1.39	0.7	78.12	771.91	-2.5	0.75
2011Q3	77.11	761.93	0.3	0.6	78.81	778.72	-0.48	0.88
2011Q4	76.34	754.35	-1.49	-1	77.87	769.43	-0.63	-1.19
2012Q1	75.36	744.61	-1	-1.29	76.72	758.04	-1.06	-1.48
2012Q2	76.27	753.6	-0.5	1.21	77.96	770.32	-0.21	1.62
2012Q3	77.73	768.05	0.8	1.92	78.69	777.5	-0.16	0.93
2012Q4	77.11	761.93	1.01	-0.8	77.92	769.89	0.06	-0.98
2013Q1	77.03	761.17	2.22	-0.1	77.46	765.37	0.97	-0.59
2013Q2	77.96	770.36	2.22	1.21	78.52	775.85	0.72	1.37
2013Q3	79.86	789.07	2.74	2.43	79.96	790.06	1.62	1.83
2013Q4	79.62	786.71	3.25	-0.3	79.9	789.44	2.54	-0.08
2014Q1	79.78	788.28	3.56	0.2	80.1	791.5	3.41	0.26
2014Q2	82.46	814.73	5.76	3.36	82.6	816.19	5.2	3.12

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Table 2 – *Continued from previous page*

	LEA model				Original model			
Period	Index	€	Y-on-Y	Q-on-Q	Index	€	Y-on-Y	Q-on-Q
2014Q3	84.29	832.85	5.55	2.22	84.43	834.26	5.59	2.21
2014Q4	84.8	837.86	6.5	0.6	84.55	835.46	5.83	0.14
2015Q1	85.73	847.13	7.47	1.11	85.34	843.27	6.54	0.93
2015Q2	87.92	868.75	6.63	2.55	87.56	865.15	6	2.6
2015Q3	91.11	900.24	8.09	3.62	90.77	896.91	7.51	3.67
2015Q4	92.62	915.21	9.23	1.66	92.54	914.39	9.45	1.95
2016Q1	92.79	916.86	8.23	0.18	92.62	915.19	8.53	0.09
2016Q2	96.12	949.78	9.33	3.59	95.9	947.61	9.53	3.54
2016Q3	97.15	959.93	6.63	1.07	97.7	965.39	7.63	1.88
2016Q4	99.85	986.59	7.8	2.78	99.75	985.58	7.78	2.09

Table 3: Summary of LEA based Rent Levels

LEA Code	Quarters $> 7\,\%$	2016Q4 €	Ratio to National	LEA Code	Quarters $> 7\,\%$	2016Q4 €	Ratio to National
1	5	986	100.0	70	3	580	58.74
2	1	750	76.08	71	3	564	57.16
3	3	685	69.47	72	3	588	59.63
4	5	552	55.93	73	2	604	61.18
5	4	618	62.66	74	4	727	73.72
6	4	568	57.57	75	6	1,165	118.12
7	2	542	54.90	76	5	1,005	101.92
8	5	629	63.76	77	3	1,185	120.12
9	3	710	72.00	78	5	919	93.18
10	6	669	67.78	79	4	868	87.98
11	3	708	71.81	80	2	587	59.50
12	2	656	66.53	81	1	630	63.90
13	4	823	83.47	82	3	487	49.35
14	4	1,041	105.47	83	1	505	51.18
15	5	1,138	115.37	84	2	690	69.92
16	3	907	91.96	85	4	666	67.49
17	2	672	68.09	86	3	451	45.73
18	2	895	90.77	87	1	572	57.97
19	2	338	34.24	88	3	665	67.43
20	5	581	58.86	89	5	492	49.87
21	1	421	42.70	90	2	618	62.60
22	3	478	48.46	91	0	635	64.35
23	0	510	51.70	92	2	561	56.84
24	4	739	74.91	93	1	569	57.67
25	6	634	64.25	94	1	654	66.32
26	1	587	59.47	95	3	596	60.45
27	5	630	63.90	96	4	631	63.99
28	3	841	85.26	97	4	620	62.83

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Table 3 – *Continued from previous page*

LEA Code	Quarters $> 7\,\%$	2016Q4 €	Ratio to National	LEA Code	Quarters $> 7\,\%$	2016Q4 €	Ratio to National
29	4	1,043	105.68	98	5	635	64.34
30	5	1,022	103.55	99	4	656	66.53
31	6	961	97.39	100	4	747	75.71
32	0	536	54.29	101	3	652	66.09
33	5	677	68.67	102	3	674	68.33
34	1	681	69.05	103	5	671	68.02
35	4	601	60.92	104	4	707	71.67
36	4	1,247	126.37	105	3	617	62.58
37	4	1,267	128.41	106	2	645	65.39
38	5	1,154	116.95	107	4	691	70.09
39	5	759	76.93	108	3	865	87.73
40	6	989	100.27	109	4	1,195	121.12
41	2	606	61.44	110	2	1,359	137.77
42	4	813	82.37	111	3	1,071	108.58
43	6	777	78.78	112	5	887	89.87
44	4	833	84.41	113	4	1,171	118.69
45	4	1,047	106.12	114	6	1,412	143.17
46	4	861	87.23	115	3	1,339	135.75
47	5	1,169	118.51	116	5	1,536	155.75
48	6	1,082	109.71	117	3	1,584	160.61
49	4	1,170	118.65	118	3	2,062	209.06
50	1	1,059	107.38	119	3	1,837	186.23
51	5	643	65.21	120	4	1,831	185.56
52	5	752	76.18	121	3	1,611	163.33
53	5	758	76.84	122	5	1,556	157.72
54	1	452	45.82	123	4	1,695	171.84
55	3	419	42.51	124	4	1,503	152.34
56	4	506	51.28	125	5	1,388	140.72
57	3	467	47.37	126	3	1,653	167.57
58	4	774	78.41	127	4	1,703	172.60

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Table 3 – *Continued from previous page*

LEA Code	Quarters $> 7\,\%$	2016Q4 €	Ratio to National	LEA Code	Quarters $> 7\,\%$	2016Q4 €	Ratio to National
59	2	648	65.73	128	4	1,393	141.25
60	5	985	99.83	129	4	1,252	126.90
61	3	805	81.59	130	4	1,285	130.30
62	5	868	88.00	131	4	1,258	127.48
63	2	552	55.94	132	5	1,427	144.67
64	6	554	56.15	133	4	1,419	143.85
65	6	556	56.35	134	4	1,262	127.92
66	5	685	69.39	135	6	1,690	171.27
67	5	899	91.10	136	5	1,353	137.15
68	4	778	78.91	137	2	1,377	139.58
69	6	907	91.96	138	5	1,424	144.33

Note: LEA codes are defined in Table 5.

Table 4: Summary of LEA Results: 2007 - 2016

	2007Q4 - 2016Q4		
Area	Mean	Maximum	Minimum
National	€760		
Stillorgan		€2062	
Glenties			€277
Largest Peak-to-Trough Change		2007Q4 - 2012Q1	2012Q2 - 2016Q4
Waterford City-South		-77 %	
Crumlin-Kimmage			68 %

Table 5: Definition of LEA Codes

LEA Code	Area	LEA Code	Area
1	National	70	Ballina
2	Carlow	71	Claremorris
3	Muinebeag	72	Castlebar
4	Cavan - Belturbet	73	West Mayo
5	Bailieborough-Cootehill	74	Kells
6	Ballyjamesduff	75	Laytown -Bettystown
7	West Clare	76	Ashbourne
8	Killaloe	77	Ratoath
9	Shannon	78	Trim
10	Ennis	79	Navan
11	Kanturk - Mallow	80	Monaghan
12	Fermoy	81	Carrickmacross-Castleblayney
13	Easet Cork	82	Ballybay-Clones
14	Cobh	83	Birr
15	Ballincollig - Carrigaline	84	Tullamore
16	Bandon - Kinsale	85	Edenderry
17	West Cork	86	Boyle
18	Blarney - Macroom	87	Roscommon
19	Glenties	88	Athlone
20	Letterkenny	89	Ballymote-Tobercurry
21	Inishowen	90	Sligo
22	Stranorlar	91	Nenagh
23	Donegal	92	Templemore-Thurles
24	Conamara	93	Carrick-on-Suir
25	Tuam	94	Clonmel
26	Ballinasloe	95	Cashel-Tipperary
27	Loughrea	96	Dungarvan-Lismore
28	Athenry-Oranmore	97	Comeragh

Continued on next page

Table 5 – *Continued from previous page*

LEA Code	Area	LEA Code	Area
29	Galway City West	98	Tramore - Waterford City West
30	Galway City Central	99	Waterford City South
31	Galway City East	100	Waterford City East
32	Listowel	101	Athlone
33	Tralee	102	Mullingar-Kilbeggan
34	Killarney	103	Mullingar-Coole
35	South and West Kerry	104	Gorey
36	Maynooth	105	Enniscorthy
37	Celbridge-Leixlip	106	New Ross
38	Naas	107	Wexford
39	Athy	108	Baltinglass
40	Kildare-Newbridge	109	Bray
41	Castlecomer	110	Greystones
42	Kilkenny City East	111	Wicklow
43	Piltown	112	Arklow
44	Kilkenny City West	113	Balbriggan
45	Cork City North Central	114	Swords
46	Cork City North East	115	Mulhuddart
47	Cork City North West	116	Castleknock
48	Cork City South Central	117	Howth-Malahide
49	Cork City South East	118	Stillorgan
50	Cork City South West	119	Dundrum
51	Borris-in-Ossory-Mountmellick	120	Glencullen-Sandyford
52	Portlaoise	121	Killiney-Shankill
53	Graiguecullen-Portarlington	122	Dun Laoghaire
54	Manorhamilton	123	Blackrock
55	Ballinamore	124	Lucan
56	Carrick-On-Shannon	125	Tallaght Central
57	Newcastle West	126	Templeogue-Terenure
58	Adare-Rathkeale	127	Rathfarnham

Continued on next page

Table 5 – *Continued from previous page*

LEA Code	Area	LEA Code	Area
59	Cappamore-Kilmallock	128	Tallaght South
60	Limerick City West	129	Clondalkin
61	Limerick City North	130	Ballymun
62	Limerick City East	131	Cabra-Finglas
63	Granard	132	Ballyfermot-Drimnagh
64	Ballymahon	133	Crumlin-Kimmage
65	Longford	134	Rathgar-Rathmines
66	Dundalk Carlingford	135	Pembroke-South Dock
67	Dundalk South	136	North Inner City
68	Ardee	137	Clontarf
69	Drogheda	138	Beaumont-Donaghmede

Figure 1: LEA based and Existing Model based estimate of national rents levels

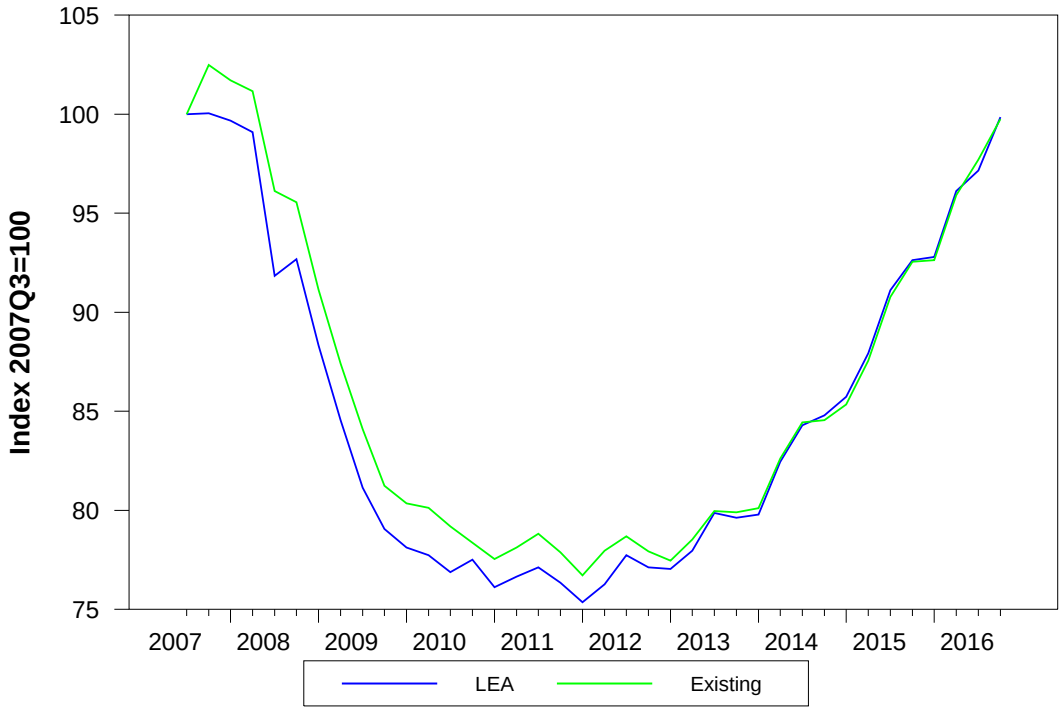


Figure 2: LEA based and Existing Model based estimate of national rents annual growth rates

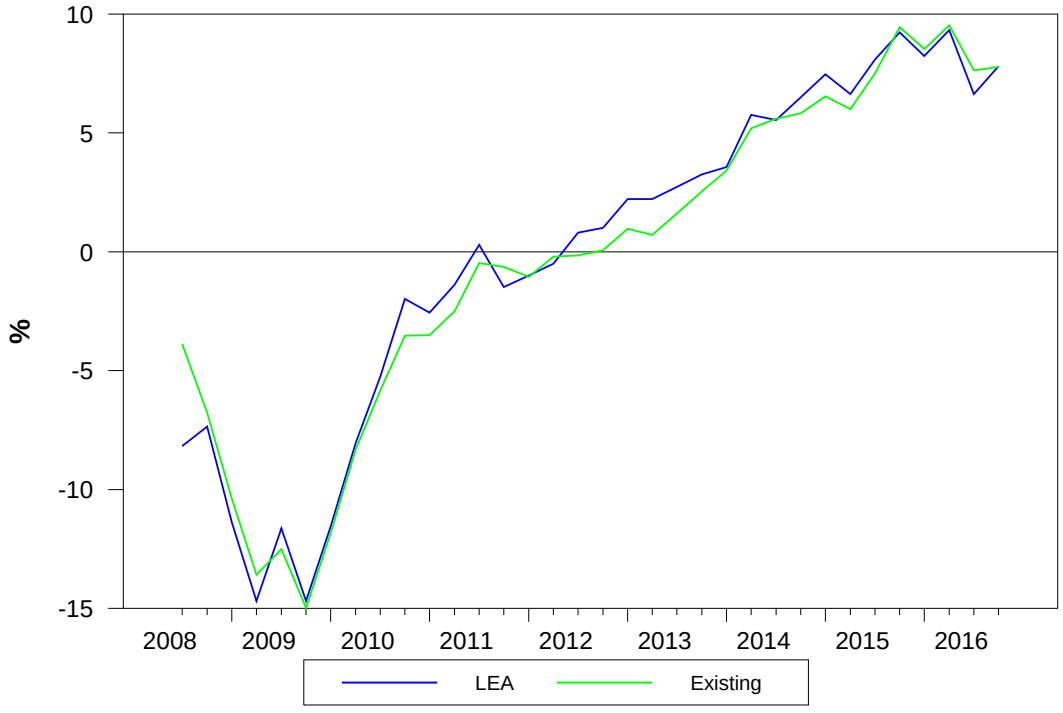


Figure 3: Heat Map of Annual Growth Rates by LEA

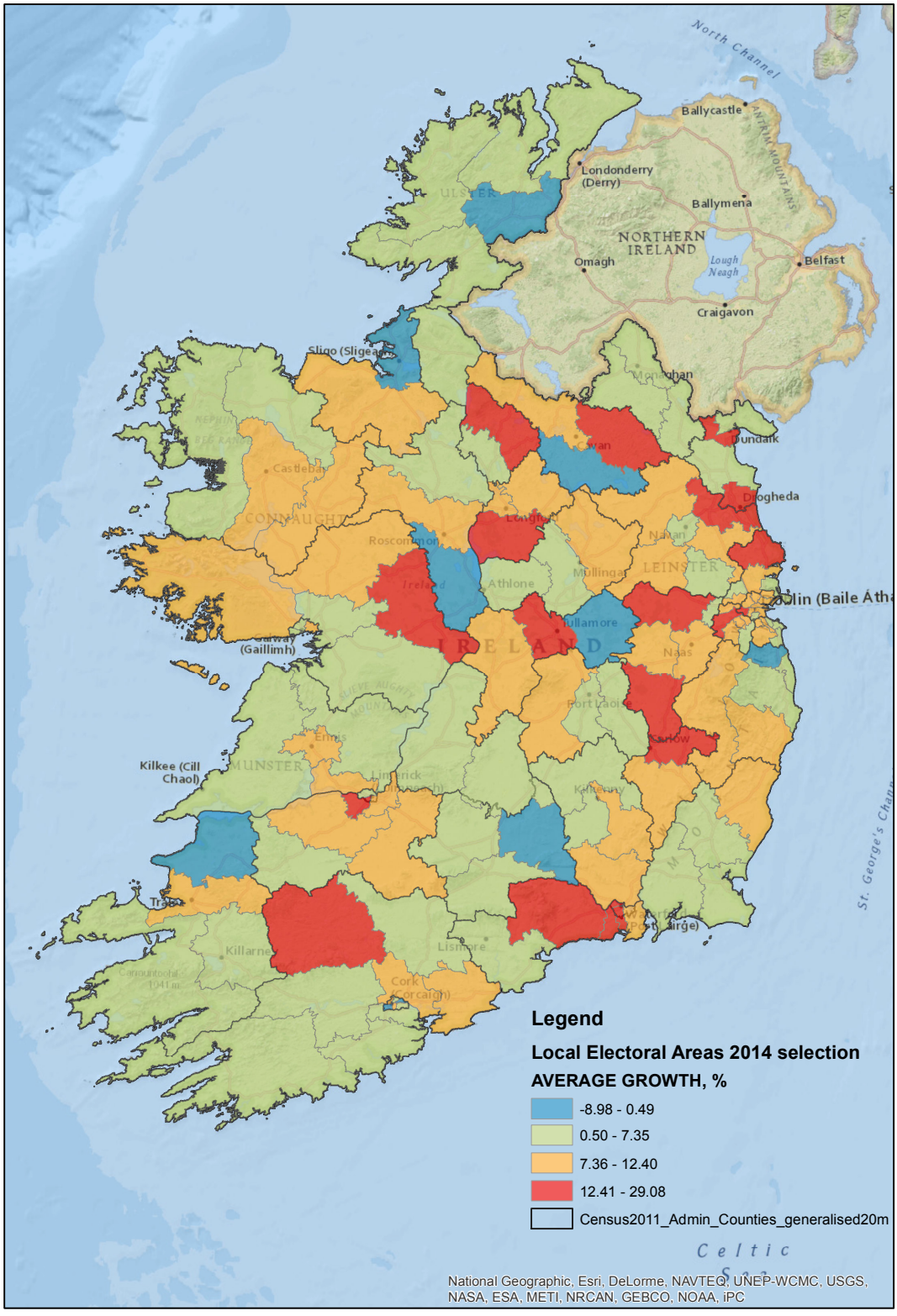


Figure 4: Heat Map of Breakdown of LEA Rents by 3 Different Criteria

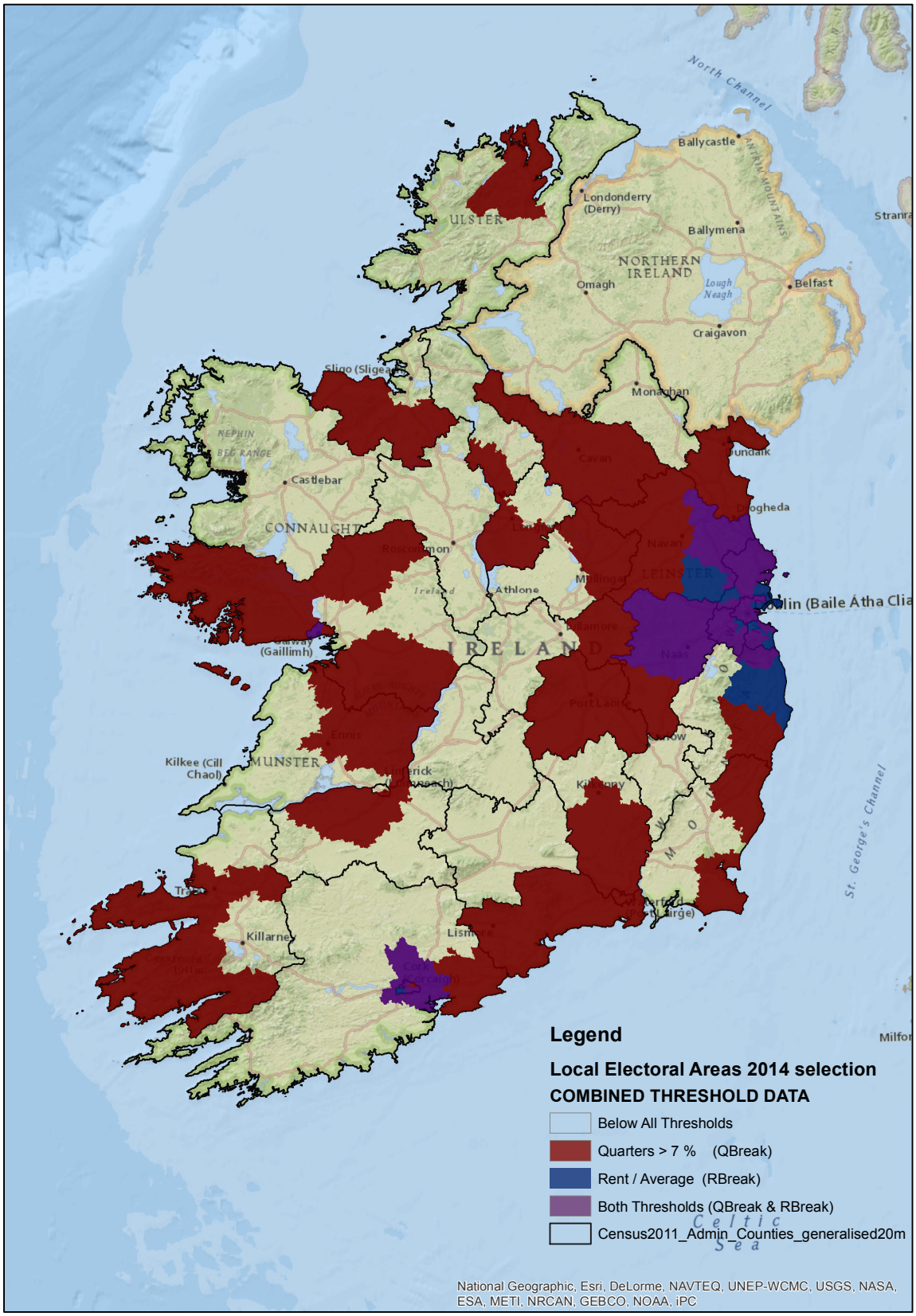
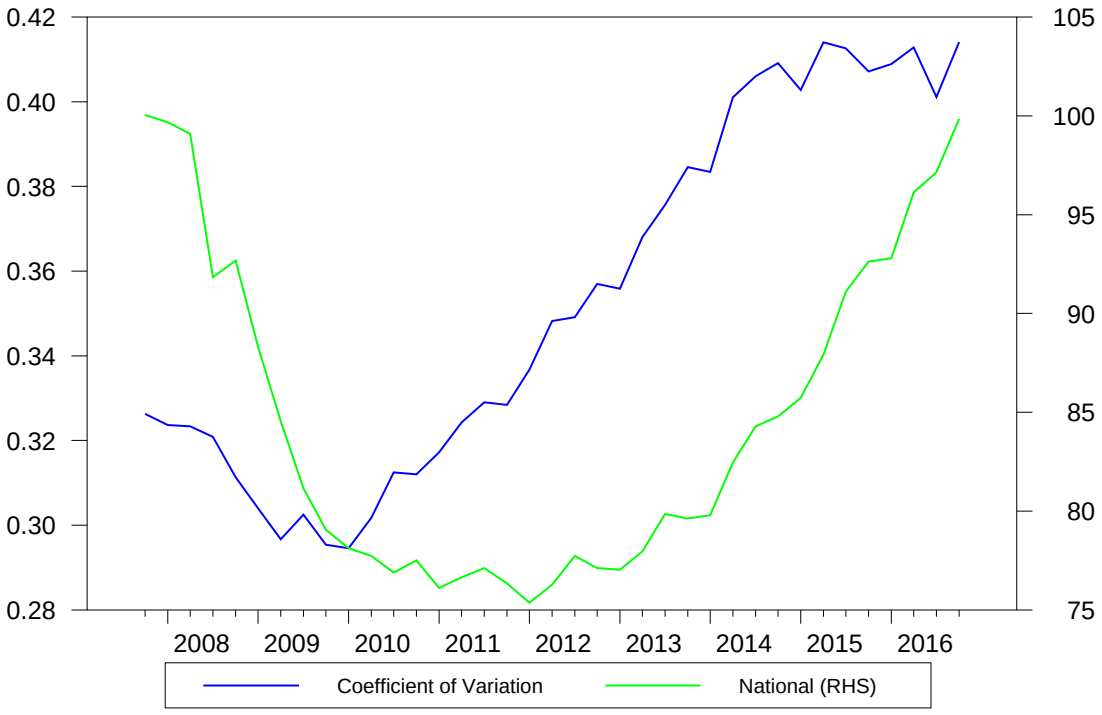


Figure 5: Coefficient of Variation and National Rent Level (LEA Model)



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