What does Big Data tell us about the private rental sector: validating online rental advertising data, research from ONS and UBDC

Shaping Cities through Urban Analytics
An Urban Big Data Centre Showcase Event
Housing and Neighbourhoods workshop
28\textsuperscript{th} November 2018

Mark Livingston, Nick Bailey, Christina Boididou
Tenure of Households 1999-2016
# Sector Complexity

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<th>Supply</th>
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<td>Low Income Tenants</td>
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Source: Scottish Parliament Information Centre Briefing paper, [https://digitalpublications.parliament.scot/ResearchBriefings](https://digitalpublications.parliament.scot/ResearchBriefings)
Accessing Zoopla Data

• Purchased a licence to access Zoopla both current and historical data (2009-2018)

• Accessed and downloaded via an Application Programming Interface (API)

• Non-trivial process making call using 27 million property ids

• Process took 8 Months to retrieve 2009 to 2016
Data Cleaning

Raw Data (11.4 million records)

All Rents (3.8 mil)

Valid records (3.1 mil)
(Valid dates, Unique Observations, valid postcodes, plausible rents)

after 2011

Post 2011 2.3mil

Sales 7,579,784

Invalid Records 713,745

Remove records pre 2012 803,778
Scatterplot Private rental households (Census 2011) by number of adverts (2012)
Figure 6: Change in median monthly rent - 2012 to 2016

Local authorities in England, 2016

R² = 0.9777

Source: Office for National Statistics, Urban Big Data Centre, Zoopla
Figure 2: Rental indices from Zoopla data and ONS
Median monthly advertised rent for all dwellings, by Local Authority, England, 2016

Median monthly rent for all dwellings, VOA, by Local Authority, England, 2016

Source: Office for National Statistics, Urban Big Data Centre, Zoopla, Valuation Office Agency
Conclusions

• Zoopla data is messy, requiring considerable cleaning

• Online adverts are not a good measure of turnover or stock

• Rental comparisons with other estimates shows high correlations

• These correlations appear to hold over time and spatially

Going forward:

• Will make comparisons with other online advertisers to assess coverage and evaluate possibilities of measuring turnover

• Plan to model with other data to improve estimates