

The information content of online real estate listings: Are they useful for monetary policy?

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- 1 Introduction
- 2 Online real estate data
- 3 Housing market, mortgages, and economic activity
- 4 Real estate dynamics and monetary policy
- 5 Conclusions

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Introduction

New sources of information

- Online information from:
 - Real estate listings: sale and rent listings (e.g. urbania, adondevivir).
 - Retail prices: department stores (e.g. Saga Falabella, Linio), and supermarkets (e.g. Plaza Vea).
 - Jobs listings: job offers (e.g. Aptitus, bumeran, CompuTrabajo).
 - Political and economic news: newspapers and news databases (e.g. Bloomberg).

Introduction

Project: "Big data analysis for monetary policy"

- Research using online information:
 - Effectiveness of central bank communication: text analysis and topic models.
 - Exchange rate forecasting and news.
 - Dollarization of real estate prices.
 - Online prices and price rigidity.
 - Real estate dynamics and monetary policy.

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Online real estate data

Collection and processing

- Information: price, currency, geographic location, type of property, property's key features (rooms, size, etc.).
- Data are obtained from “urbania.pe” and “adondevivir.com”:
 - All available online real estate listings are downloaded every weekday: sales (existing properties and new projects) and rent listings.
 - Data are permanently monitored and cleaned.
 - A code written in R performs both data collection and processing.
 - Information available from 2016.

Online real estate data

Collection and processing

- Database with approximately 20 million prices:
 - Sale prices: 14,6 millions.
 - Rent prices: 5,2 millions.
 - New project prices: 0,2 millions.

Online real estate data

Some statistics: dollarization by region and type of listing

Region	Sales	New projects	Rent
Amazonas	72.91	-	-
Ancash	88.39	-	29.62
Apurimac	79.24	-	21.42
Arequipa	94.27	3.22	21.85
Ayacucho	85.82	-	42.85
Cajamarca	75.92	-	11.40
Callao	95.76	0.00	43.45
Cusco	98.98	0.00	32.51
Huancavelica	42.85	-	0.00
Huanuco	87.14	-	22.95
Ica	93.62	28.57	35.37
Junín	77.08	25.00	13.46
La Libertad	92.23	17.64	17.59
Lambayeque	86.86	16.66	18.85
Lima	94.38	46.96	75.29
Loreto	87.53	100.0	31.13
Madre de Dios	88.88	-	31.25
Moquegua	81.81	-	5.26
Pasco	71.10	-	57.14
Piura	92.61	35.29	22.80
Puno	95.23	-	0.00
San Martín	54.43	-	50.00
Tacna	96.29	0.00	14.13
Tumbes	96.54	100.0	46.29
Ucayali	65.66	-	26.11
Total	90.30	40.40	68.80

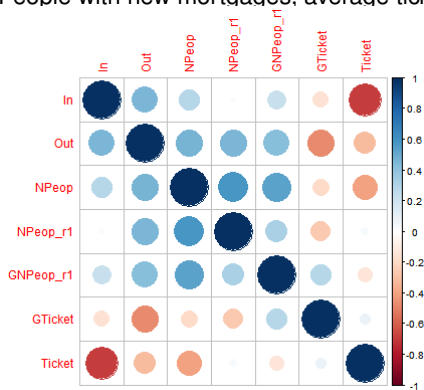
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Housing market, mortgages, and economic activity

Inflows and outflows reflect information related to mortgages.

Correlations: People with new mortgages, average ticket and growth.



Housing market, mortgages, and economic activity

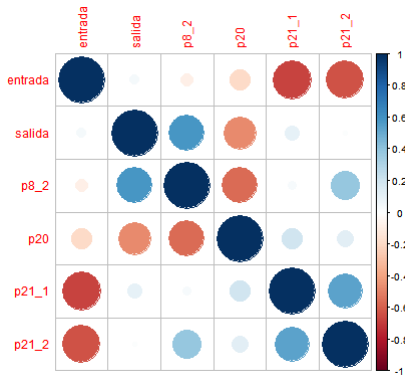
Approximating demand: google searches (Google Trends)

- In the case of sales, the following terms were obtained from Google Trends:
 - Mortgage, Mortgages, Mortgage Loan, Mortgage Credit, Loans + Mortgage.
 - Houses, Houses + Apartments, Houses for sale.
 - Apartment, Apartments for sale.
 - Urbania, Urbania Lima, Urbania Peru, Urbania + Adondevivir, Urbania Rent.
 - Urbania Sale Departments.
 - Urbania Houses.

Housing market, mortgages, and economic activity

Approximating demand: google searches (Google Trends)

Correlations: Real state (p8), Mortgage Credit (p20), Loans + Mortgage (p21).

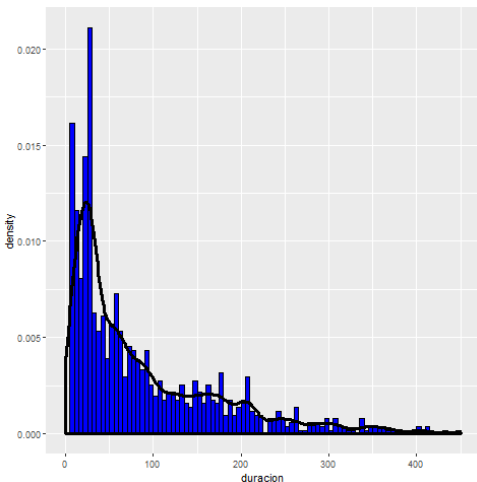


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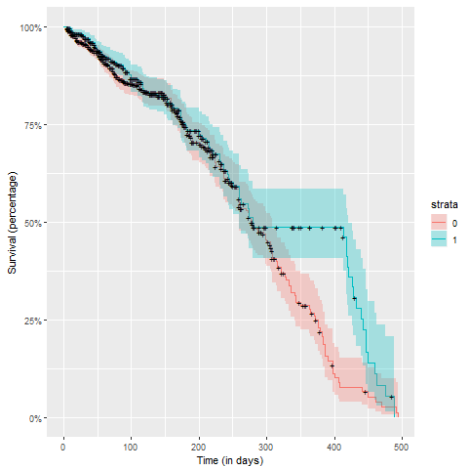
Real estate dynamics and monetary policy

New projects listings: Distribution of duration



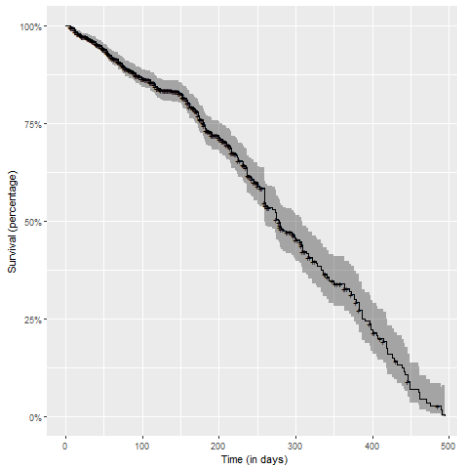
Real estate dynamics and monetary policy

New projects listings: Kaplan survival function (1 if interest rate greater than the p.75)



Real estate dynamics and monetary policy

New projects listings: Cox survival function (with covariates)



Real estate dynamics and monetary policy

Determinants of duration: Is the interest rate relevant?

We estimated the following equation:

$$\log(t_i) = \beta_0 + \beta_1 \bar{x}_i + \sigma \epsilon_i$$

Where:

- t_i : time until i online add is removed
- β_0 : intercept
- β_1 : vector of coefficients
- \bar{x}_i : vector of i announcement characteristics
- σ : scale parameter
- ϵ_i : i.i.d. errors

Real estate dynamics and monetary policy

Determinants of duration: Is the interest rate relevant?

Estimated Duration Models

(Weibull distribution)

	Projects	Sale	Rent
Intercepto	5.89***	5.48***	4.75***
pm2	-0.05***	-0.01***	3.35***
rate	0.02	0.10***	0.28***
dolar	0.10*	-0.11***	-0.10***
log(size)	0.04	-0.04***	-0.09***
rooms	0.00	0.01***	0.02***
alfa	0.38***	0.43***	0.52***

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Conclusions

- Online data provides is a new rich source of information.
- Monetary policy actions can potentially benefit from online information from housing market.
- Some potential applications: leading indicators, assessment of monetary policy actions.

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