The long-term housing rental market in Poland for the years 2000-2023

Radoslaw Trojanek

POZNAŃ UNIVERSITY OF ECONOMICS AND BUSINESS

Al. Niepodległości 10
61-875 Poznań, Poland
phone +48 61 856 90 00
www.ue.poznan.pl/en

PLAN OF PRESENTATION

1. Introduction

2. Data sources

3. Methods of analysis

4. Results of the research

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Introduction

- Through various channels, the housing market significantly influences the processes taking place across the economy (Bauer 2017).

- The interest in the housing market has been extensively growing since the 2007-2009 financial crisis outbreak.

- The housing market has started to be included in the general equilibrium model (Chatterjee and Eyigungor 2015; Kaplan, Mitman, and Violante 2017)

- The developed housing rental market may significantly influence the stability of the residential real estate market, may reduce the problematic fluctuations in the construction sector and may be considered statistically significant in decreasing macroeconomic volatility (Czerniak and Rubaszek 2018; Rubaszek and Rubio 2020).

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Introduction

The long-term rental market in Poland

- In Poland, the percentage was 87% (considering ownership and cooperative-ownership rights to housing).

- 13 % of the population in Poland lived in rented housing. In addition, only 3.2% of the population lived in apartments rented at market price

- The rental market in Poland is underdeveloped compared to other countries.

- Pandemic shock - 2020

- Russia's aggression of Ukraine in 2022

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Introduction

Several researchers have speculated on the potential of using online list-data as a more timely alternative to transaction price indices:

Shimizu, C., Nishimura, K. G., and Watanabe, T. (2016). House prices at different stages of the buying/selling process. Regional Science and Urban Economics, 59(C):37–53.

Anenberg, E. and Laufer, S. (2017). A more timely house price index. Review of Economics and Statistics, 99(4):722–734.

Lyons, R. C. (2019). Can list prices accurately capture housing price trends? Insights from extreme markets conditions. Finance Research Letters, 30:228–232.

Wang, X., Li, K., and Wu, J. (2020). House price index based on online listing information: The case of China. Journal of Housing Economics, 50(July):101715.

Kolbe, J., Schulz, R., Wersing, M., and Werwatz, A. (2021). Real estate listings and their usefulness for hedonic regressions. Empirical Economics, 61(6):3239–3269.

Trojanek, R; Hill, R.; Pfeifer, N.; Steurer, M. Warning (2022) : Improving the timeliness of house price indices using online listing data; Working Paper 2022.

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Introduction

HPI's - RTD listings and Official (Statistics of Poland) based on transactions Q1 2010 - Q1* 2023 (25.02.2023) (Q1 2010 = 1)
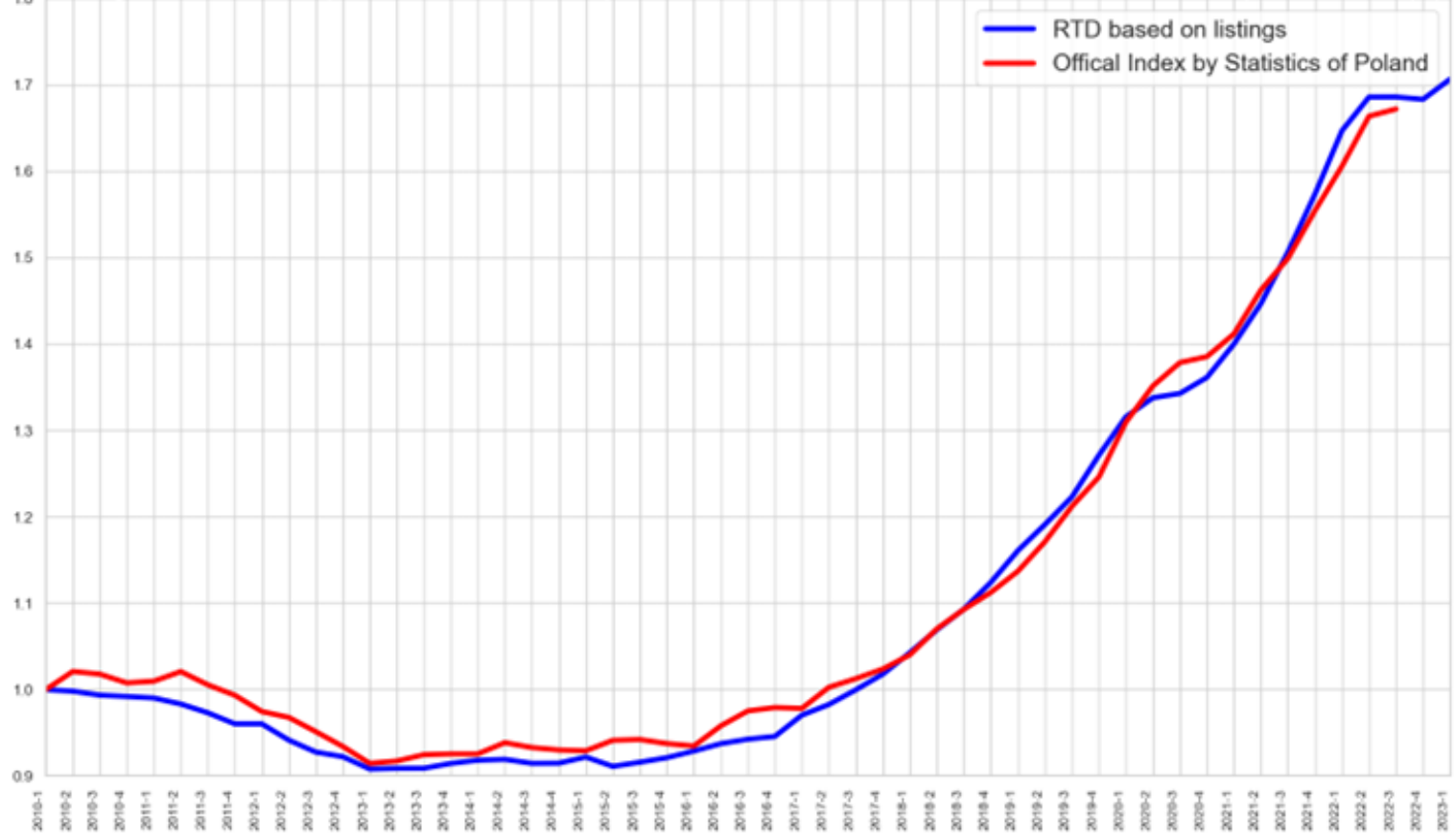
Trojanek R., *Hedonic House Price Index for Poland based on listings*, 2023.

The subject scope:

Dwellings' rents in multifamily buildings.

The time scope:

Q1 2000 – Q2 2023

The spatial scope:

9 biggest cities in Poland - Bydgoszcz, Gdańsk, Kraków, Lublin, Łódź, Poznań, Szczecin, Warszawa, Wrocław

Market	Time scope	Spatial scope	Share in the rental market of 18 capital cities	Share in the rental market of Poland	Source
LTR	2000-2008	Warsaw, Krakow, Lodz, Gdansk, Poznan	80%	60%	archival newspapers
	2009-2023	Warsaw, Krakow, Lodz, Gdask, Poznan, Wroclaw, Szczecin, Bydgoszcz and Lublin	93%	70%	webscrapped

Data sources

In Poland, the data on apartment rents for provincial cities are published by the National Bank of Poland (NBP). Data from Q1 2009. Quarterly average rent per square meter.

Data used in this research:

- over 900 thousand rent listings
- the data for 2000-2008 were obtained from archival advertisements (various local periodicals), in the form of photocopies, photographs or periodicals themselves, which were then digitally reproduced and arranged in a database
- the data from Q4 2008 were collected from advertising portals (e.g. gratka.pl / otodom.pl) several times a quarter

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Data sources

Data preparation:
- removing observations without address, price, area
- adding the information on district/estate ; adding information based on previous data
- removing duplicates (the last offer left in the dataset)
- removing outliers

Id	City	Nb of inhabitants	Listings Q1 2000 - Q4 2008	Listings Q4 2008 - Q2 2023
1	Warsaw	1.792.718	17.803	471.272
2	Krakow	780.796	15.207	128.673
3	Lodz	667.923	9.378	35.689
4	Wroclaw	641.201	15.363	61.604
5	Poznan	530.464	11.920	74.724
6	Gdansk	470.633	-	31.250
7	Szczecin	396.472	-	14.684
8	Bydgoszcz	341.692		20.494
9	Lublin	337.788	-	8.896
	TOTAL		**69.671**	**847.286**

Methods of analysis

House Rent Index methodology:

- Hedonic RTD

- Window = 8 quarters

$$\ln p_{\tau n} = \sum_{c=1}^{C} \beta_c z_{\tau c n} + \sum_{s=t+1}^{t+m} \delta_s d_{\tau s n} + \varepsilon_{\tau n}$$
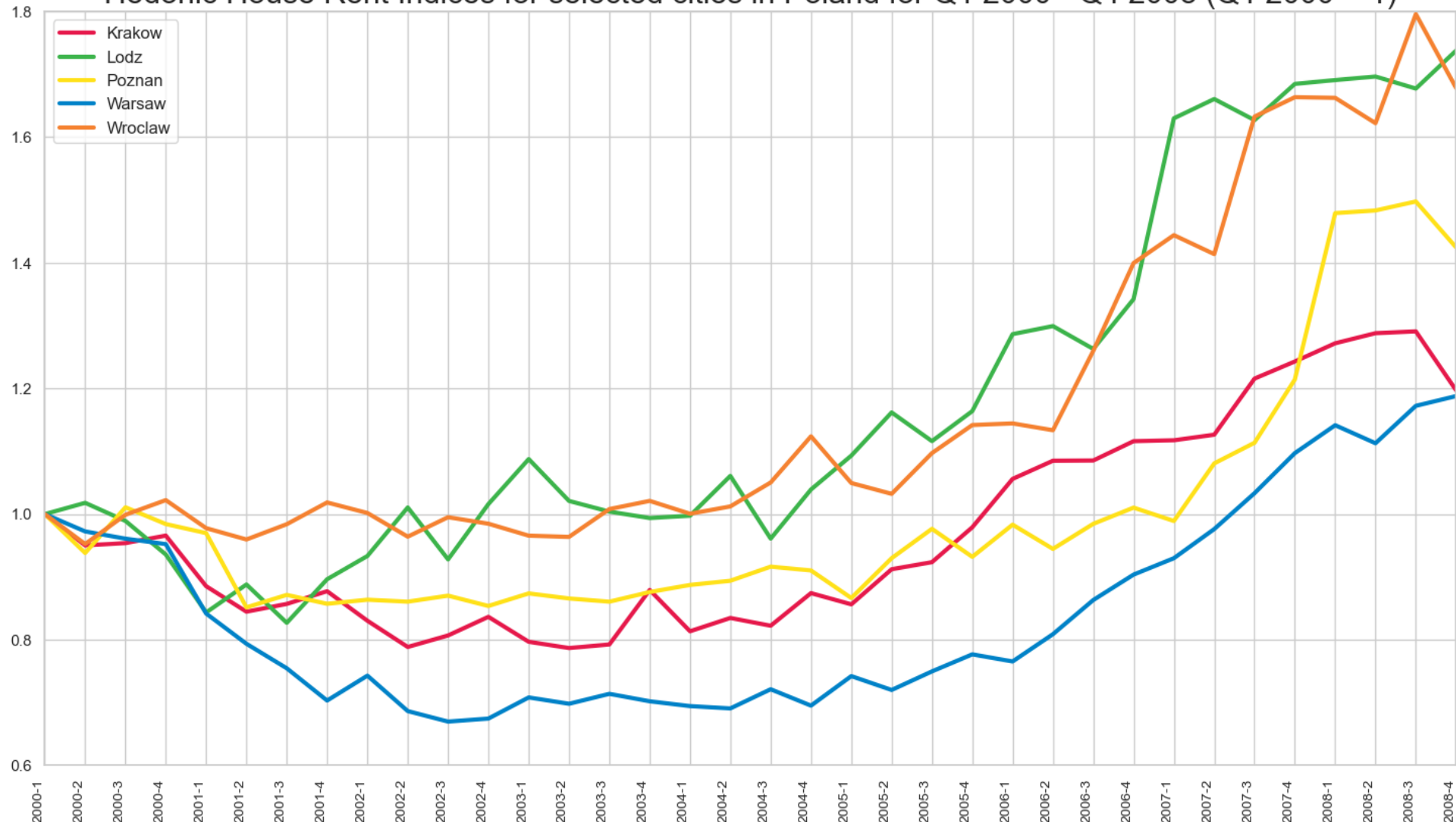
Variables used:

Offers from Q4 2008 – district/estate, area, age, technology, quality of the apartment

Offers up to Q4 2008 – district/estate, area

Results of research

Hedonic House Rent Indices for selected cities in Poland for Q1 2000 - Q4 2008 (Q1 2000 = 1)

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Results of research

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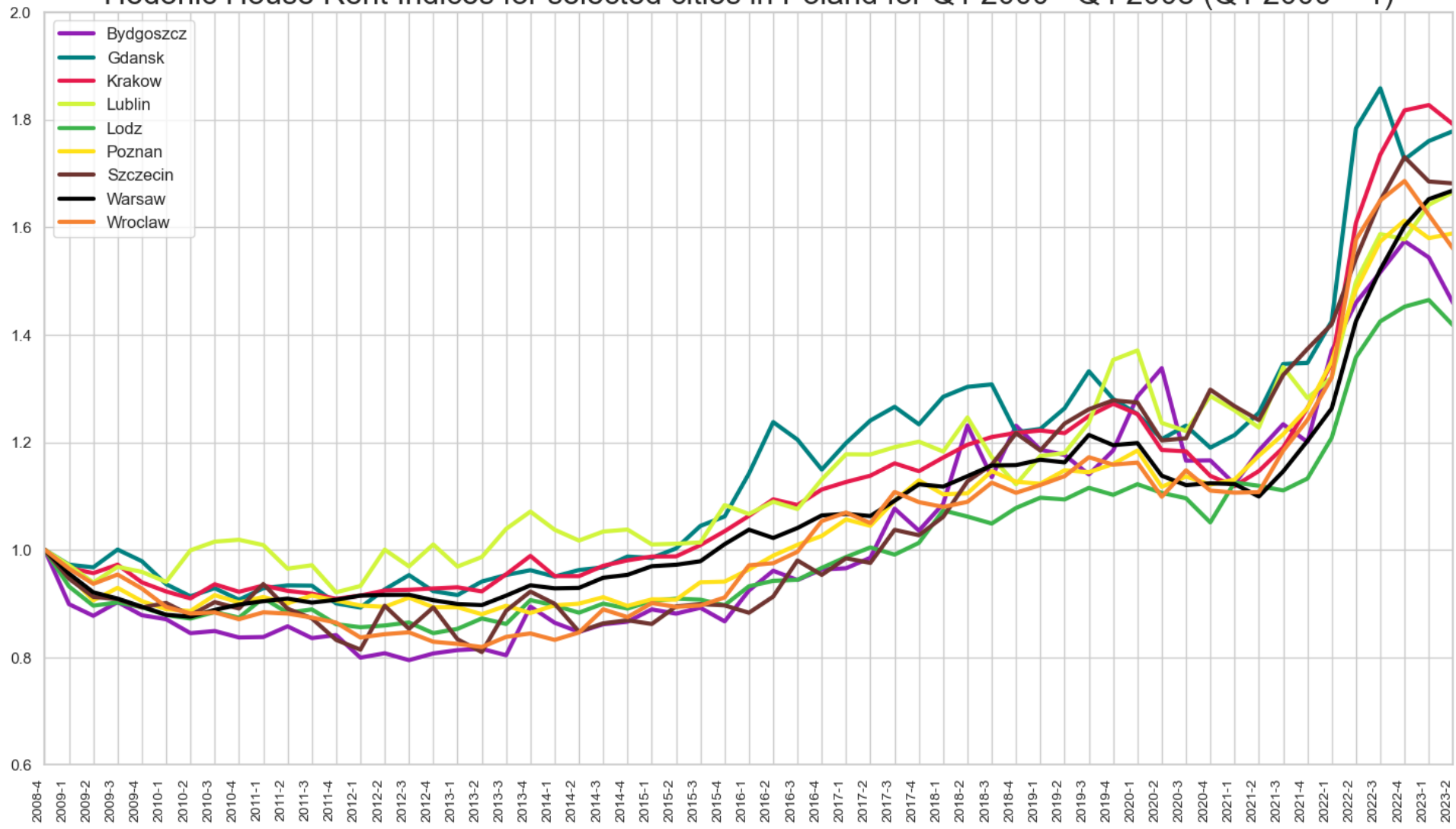
WEIGHTS BASED ON THE NUMBER OF LISTINGS IN 2023

Weights based on number of listings in 2023 - Rent Price Index 2000-2008
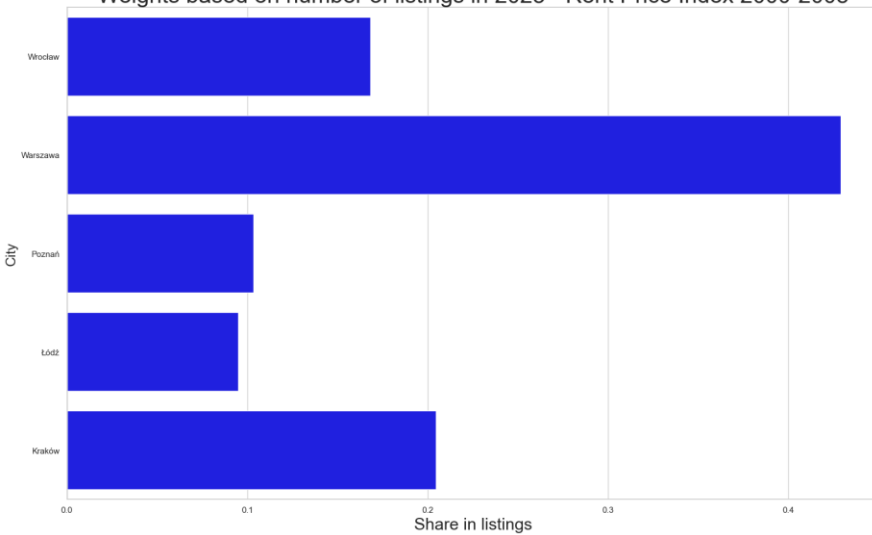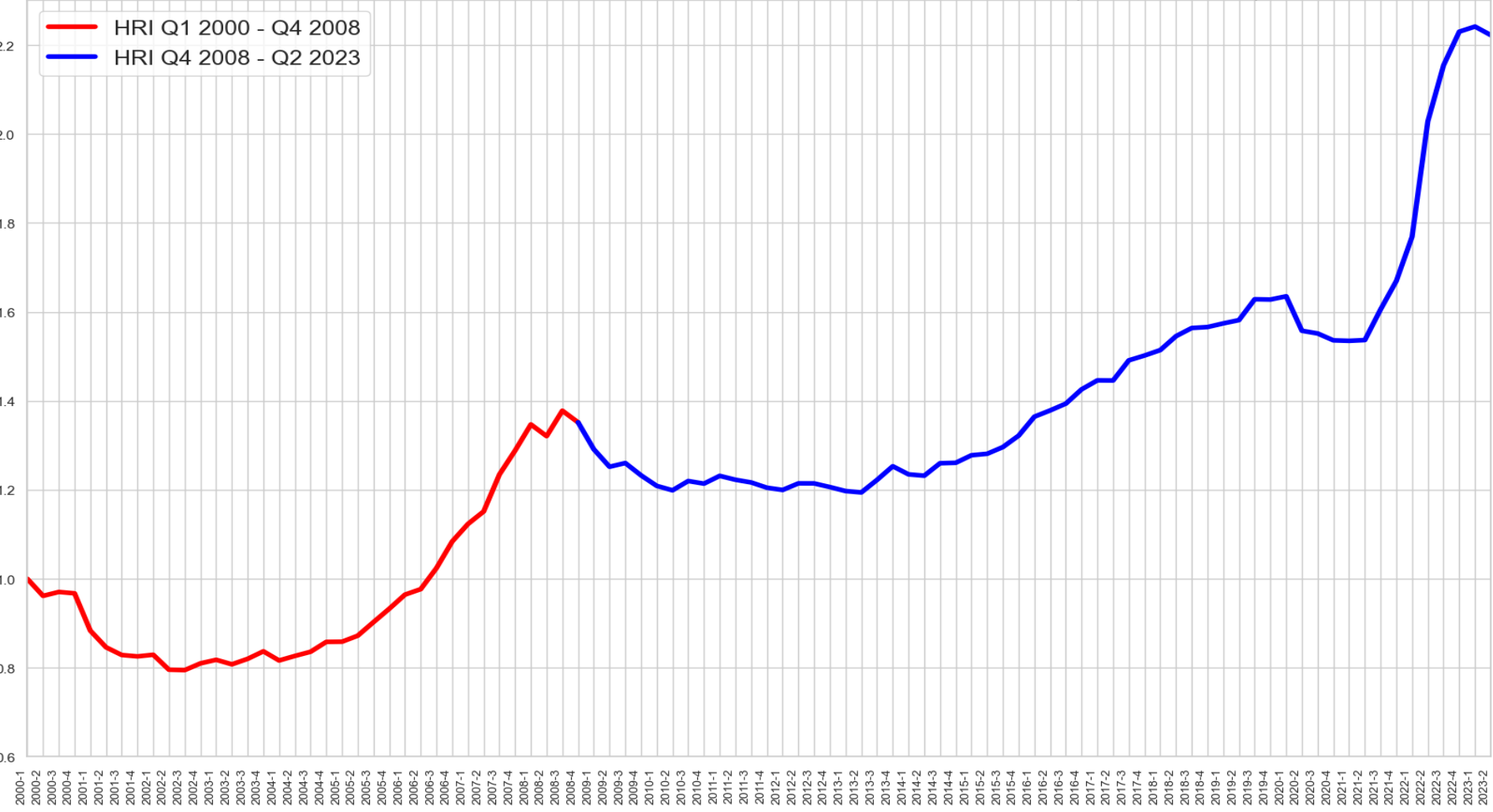

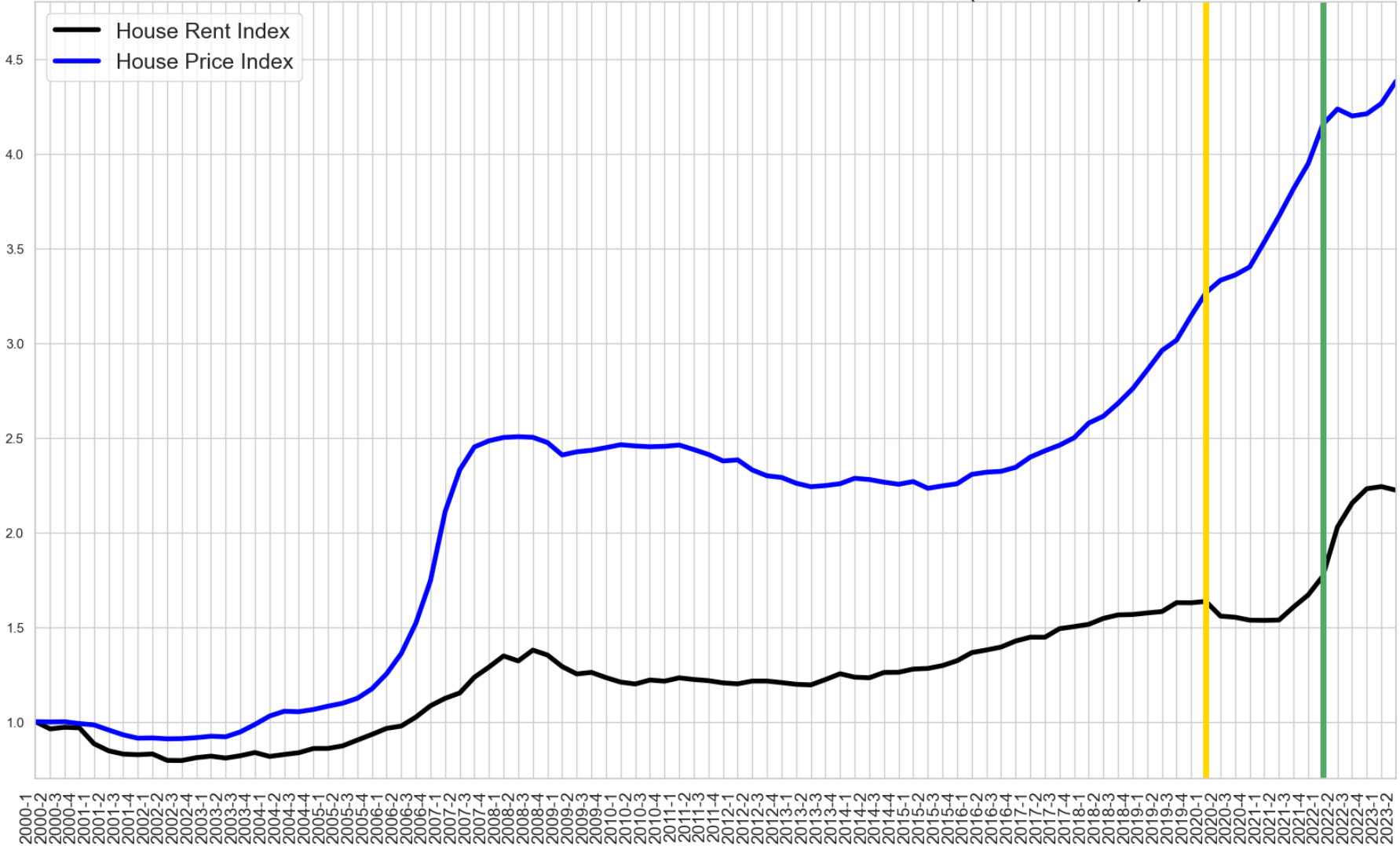Weights based on number of listings in 2023 - Rent Price Index 2008-2023
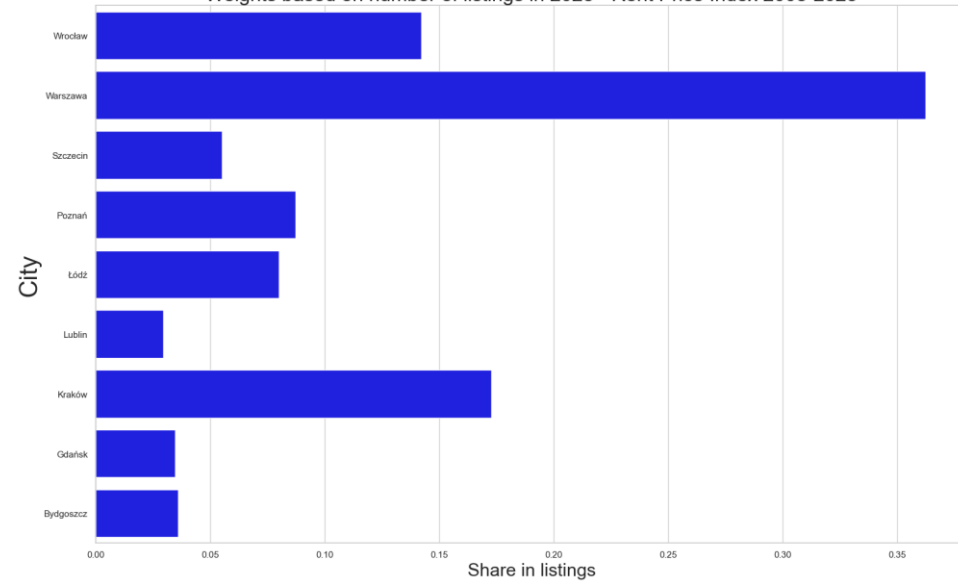
Results of research

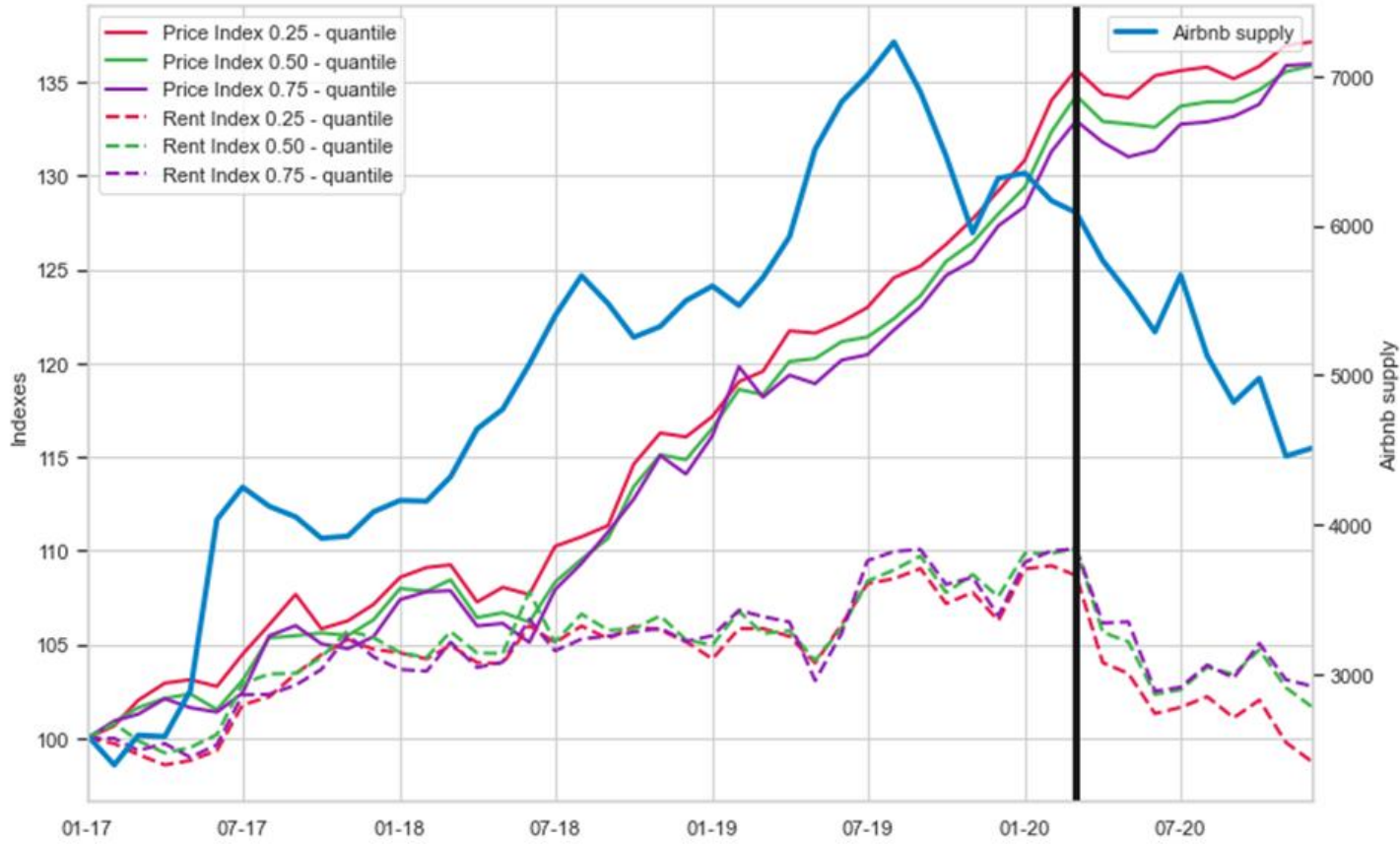## Hedonic House Rent Index for Poland Q1 2000 - Q2 2023 (Q1 2000 = 1)

Results of research

Hedonic HPI and HRI for Poland Q1 2000 - Q2 2023 (Q1 2000 = 1)

Results of research

Fig. Quantile hedonic house price, rent indexes and Airbnb supply for Warsaw (Jan 2017–Dec 2020)


Note: The vertical line indicates the introduction of lockdown in Poland.

Trojanek R., Gluszak M., Hebdzynski M., and Tanas J., *The COVID-19 pandemic, Airbnb and housing market dynamics in Warsaw*, „Critical Housing Analysis", 2021, t.8, no 1, pp. 72–84.

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Results of research

Hedonic house price and rent indices (quantile 0.50) for Krakow and Warsaw (Jan 2018 – Apr 2022)
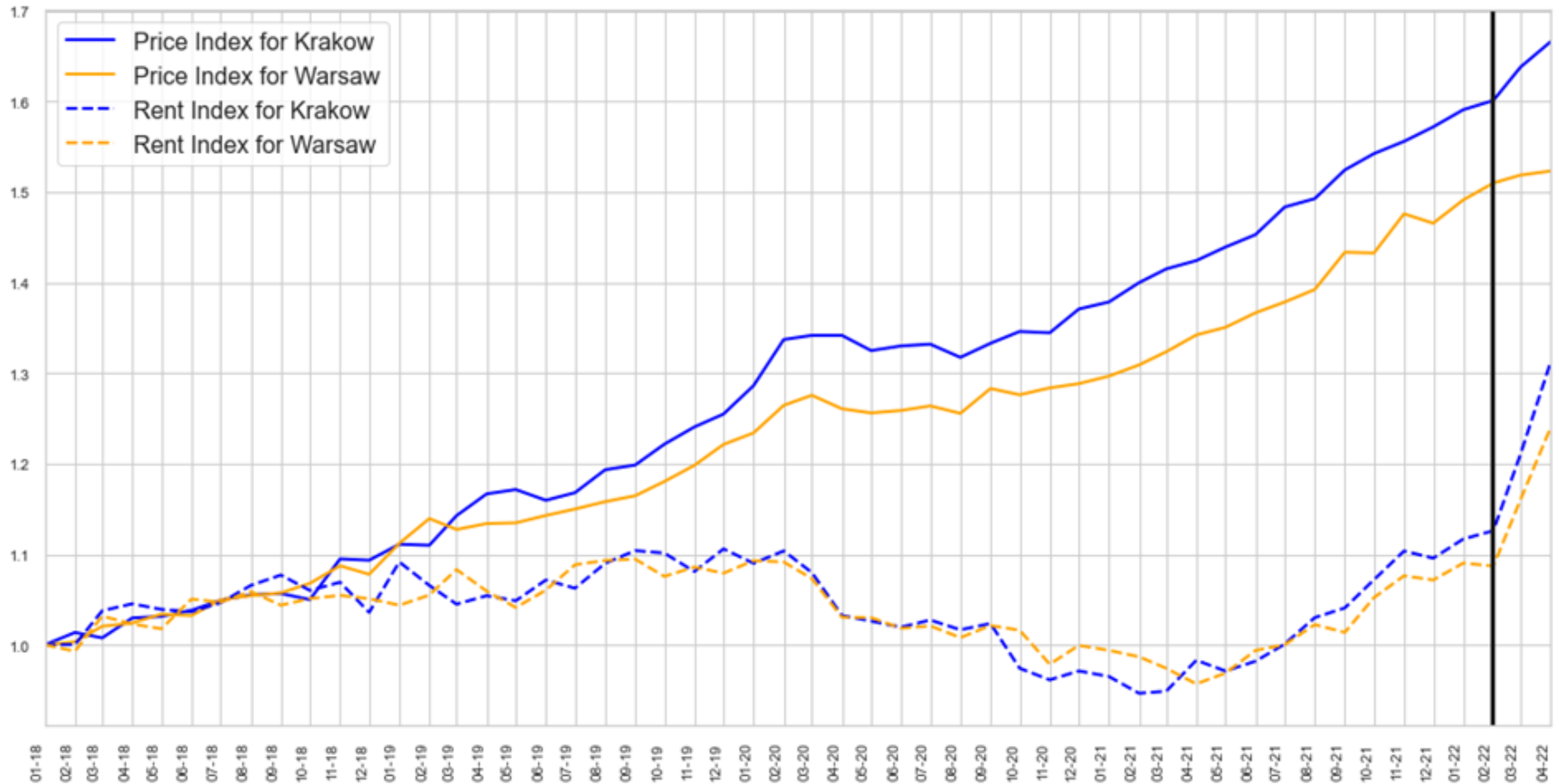
Trojanek R., and Gluszak M., *Short-run impact of the Ukrainian refugee crisis on the housing market in Poland*, „Finance Research Letters", 2022, t. no May, p. 103236.

Conclusions

- listings data, despite their drawbacks, if properly prepared, may help construct rent indices on the residential market

- hedonic methods should be used to determine pure rent changes

- listings data allow for analysis of current changes in the rental housing market

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radoslaw.trojanek@ue.poznan.pl

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