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## **Influence of disasters on the housing market on the example of Poland**

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### **Abstract**

**Background & Study Aim:** Our research is compatible with the 11th United Nations' Sustainable Development Goal: 'Make cities and human settlements inclusive, safe, resilient and sustainable'. The aim of the study is to fill the research gap and examine the housing market of the local level of county in Poland, excluding the cities with county rights. We have formulated a research question: what was the impact of the SARS-CoV-2 pandemic and the war in Ukraine on the Polish housing market? **Material & Methods:** The method of the research was desk analysis in seven steps. The spatial range is Poland. The time span concerned the years 2016-2019 and 2020-2023. We used the data from the Statistics Poland database. **Results & Conclusions:** The disasters such as the Covid-19 pandemic and the war in Ukraine influenced the Polish housing market. The total number of apartments sold as part of market transactions per 1000 inhabitants in Poland and the total area of apartments sold as part of market transactions per 1000 inhabitants in Poland decreased in 2020 and 2022 because of the Covid-19 pandemic and the war in Ukraine. The highest growth rates of the median value of prices per square meter of apartments sold as part of market transactions in Poland and the average price of apartments sold as part of market transactions in Poland were noted in 2020-2023. The highest increase of the average of total number and area of apartments sold as part of market transactions per 1000 inhabitants in Polish counties in 2020-2023 comparing 2016-2019 was in the western part of Poland, especially counties with the geographical rent. The highest increase of the average of median of prices per square meter and average price of apartments sold as part of market transactions in average Polish county in 2020-2023 comparing to 2016-2019 in 2023 USD was in the counties located in the western, central, southern and north-eastern Poland, especially counties with the geographical rent.

**Keywords:** real estate market, Covid-19 pandemic, war in Ukraine

**Jel codes:** F52, R31

### **1. Introduction**

A disaster can be defined as a sudden event with tragic effects, causing losses, suffering of people and often also changes in the affected area (Abbott, 2009; Alexander, 1993; Piepiora, 2012). Disasters include epidemics (UNISDR, 2009) and war (Fischer, 2008, Kowalski, 2008). In November 2019, the Covid-19 epidemic started in China and resulted in the pandemic in March 2020 (Zhu et al., 2019). In February 2022 Russia invaded Ukraine (Piepiora et al. 2022).



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Our research is compatible with the 11th Sustainable Development Goal of the United Nations: ‘Make cities and human settlements inclusive, safe, resilient and sustainable’ (United Nations, 2025). The aim of the study is to fill the research gap and examine the housing market of the local level of county in Poland, excluding the cities with county rights. We have formulated a research question: what was the impact of the SARS-CoV-2 pandemic and the war in Ukraine on the Polish housing market?

The spatial range of the subject of research covers the area of Poland, especially city counties created by the administrative reform in 1999 (Przybyła, 2024). The time span of the research concerned the years 2016–2023. It was divided into two equal intervals – the years 2016–2019 and 2020–2023. The dividing year was 2020 when the Covid-19 pandemic started in Poland.

We used the data from the BDL database of the Statistics Poland database. The analysis was limited only to sales market because the data concerning the rental market were not available for counties for the years 2016–2023 in mentioned database.

## 2. Literature Review

Prior analyses concerned the impact of the Covid-19 pandemic on the housing market were made by Del Giudice et al. (2020), Bochko et al. (2022) and Tomal (2021). The former examined the short and mid-run effects on housing prices in Campania region (Italy) and the latter analysed of the housing construction market in Ukraine. The last one investigated the impact of various Covid-19 pandemic waves on real estate stock returns and their volatility in developed (USA, Australia), emerging (Türkiye, Poland), and frontier (Morocco, Jordan) markets.

The impact of migration shocks on housing market were examined by Alhawarin et al. (2021) for Syrian refugee crisis in Jordan and by Hrabynskiy et al. (2022), Yakubovsky et al. (2023) and Czerniak (2024) for the Russian-Ukrainian War in Ukraine. The first author investigated the impact of migration shocks on housing conditions and rental prices for the local population. The second grouped the areas of Ukraine according to the level of influence of the Russian-Ukrainian war on the development of the primary residential real estate market. Yakubovsky (2024) examined the influence of Covid-19, current war and other factors on the dynamics of real estate prices in Ukraine. The last one explored the impact of Ukrainian war refugees on rental prices in 27 European countries.

In Poland, prior analyses have mainly concerned the influence of the Covid-19 pandemic on the housing market. We can divide them into studies that cover the whole area of Poland: Szmytkowska (2020), Belej (2022), Kajta et al. (2022) and Bryx et al. (2023) as well as individual cities. The first research examined the consequences of the pandemic and new development opportunities for Polish cities according to regions. Belej (2022) used Google search query data on real estate interest for Lithuania, Latvia, Poland, and Sweden. He stated that the increase in Covid-19 infections negatively affected society’s interest in housing. Kajta et al. (2022) did qualitative study of young adults in Poland during the Covid-19 pandemic. Authors offered a new ‘ABCD’ typology for investigating housing transitions and housing paths during the disaster. Bryx et al. (2023) explored the impact of economic factors, such as changes in interest rates and inflation, on the primary housing market in Poland from January 2019 to September 2022.

The studies for specific cities in Poland did Bas (2022), Gnat (2022), Kazak et al. (2023), Augustyniak et al. (2021), Belej (2021), (Marona and Tomal 2020), Tomal and Marona (2021), Tomal and Helbich (2022), Trojanek et al. (2021), Trojanek (2021) Tomal (2023) and Frej (2023). Bas (2002) assessed the impact of the socio-economic situation caused by the Covid-19 pandemic on the residential property market in Szczecin. He stated that the impact of the pandemic varied at district level within the examined city. The other analysis of the impact of the Covid-19 pandemic on the real estate market in Szczecin did Gnat (2022). He verified the pandemic and the socio-economic processes triggered by it, such as the development of remote working, changed the process of price divergence into a process of price convergence. Kazak et al. (2023) examined the primary residential property market in Opole during the Covid-19 pandemic. They found out that both property prices and preferences relating to the structure and location of housing changed during the Covid-19 pandemic. Augustyniak et al. (2021) presented the first insights into the impact of the Covid-19 pandemic on the primary housing market in Warsaw. They stated that the Covid-19 pandemic has had a limited negative impact on the primary housing market and rental market in the capital city of Poland. Moreover, Warsaw was examined with Poznań in the study of Belej (2021). He explored the housing price dynamics and forecasting in Polish cities during the Covid-19 pandemic. His strong forecasted growth trends in Warszawa and Poznań suggested that there would be no significant price decline in Poland soon. Marona and Tomal (2020, 2021) explored the Covid-19 pandemic impact upon housing brokers’ workflow and their clients’ attitude in Krakow. Also in that city, Tomal and Helbich (2022) assessed rental housing submarkets before and during the pandemic. They revealed that the pandemic outbreak significantly lowered rents and modified the relevance of some housing characteristics for rental prices. The study of capital city of Poland was made by Trojanek et al. (2021). They

analysed the impact of Covid-19 on house rents and prices in Warsaw between March and December 2020. They showed the effect of the shrinking Airbnb market on the drop in long-term rents. In the other study, Trojanek (2021) extended the analysis to 18 Polish provincial capitals. He used a unique dataset of 4,5 million offers between 2000 and 2020. He stated that the apartment prices continued to grow by 2.9% on average in the real term during the Covid-19 pandemic in 2020. The analysis of Polish provincial capitals was also carried out by Tomal (2023) who assessed the impact of the Covid-19 pandemic on the convergence of sales and rental housing prices. He revealed that the pandemic led to divergence in the primary sales housing market, growth convergence in the secondary sales housing market, and a weakening growth convergence in the rental housing market. Last of authors indicated that the SARS-CoV-2 virus did not have a negative impact on the price dynamics of undeveloped real estate for single-family housing.

Trojanek and Gluszak (2022), and Heldak et al. (2023) carried out studies on the impact of the Russian aggression on Ukraine in February 2022 on rental and housing prices. First authors examined only two major cities in Poland – Warsaw and Krakow. They examined only two major cities in Poland – Warsaw and Krakow. Authors stated that the tremendous urban population growth caused by the inflow of Ukrainian refugees in a brief period generated a housing demand shock, which, combined with constrained availability, resulted in extraordinary changes in prices and rents. Heldak et al. (2023) examined Lublin and Rzeszów. They showed an increase in rental prices in March 2022, mainly in Rzeszów, and similar correlations of the impact of characteristics on the market rental rate in both cities in relation to the area of the unit, the number of rooms, the location on the floor, the condition of the flat and the age of the building.

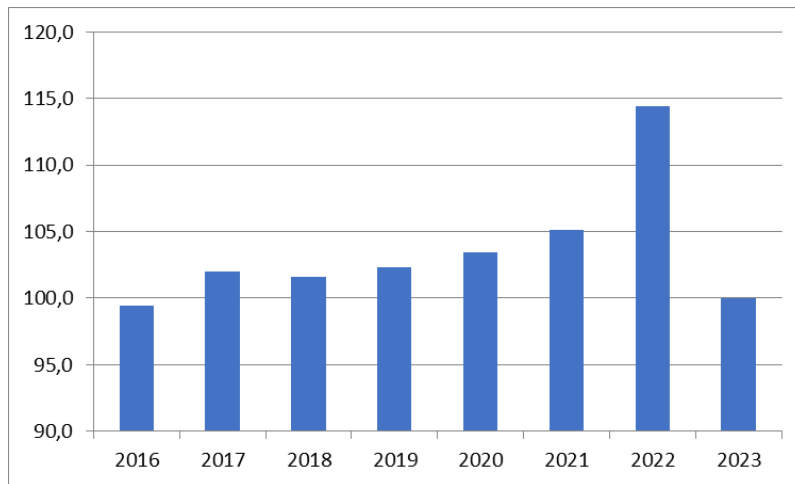
The studies that cover the influence of both disasters, the Covid-19 pandemic and the war in Ukraine on the Polish housing market, include: Trojanek et al. (2023), Gluszak et al. (2024), Hebdzyński (2024a, 2024b), Łaszek et al. (2024). The studies also concerned only capital cities of provinces in Poland. Trojanek et al. (2023) investigated the potential house price bubble in eighteen provincial capital cities in Poland from 2000 to 2022, including the evaluation the risk of the housing bubble during the Covid-19 pandemic and the war in Ukraine. They did not note the indications of irrational house price behaviour in Polish cities in recent years contrary to the 2007. Gluszak et al. (2024) examined Łódź, Warszawa, Poznań, Kraków and Wrocław and found some evidence that the arrival of migrants may have slightly increased apartment prices; however, the impact is smaller than in the case of rents and statistically significant only in selected specifications. Hebdzyński (2024a, 2024b) explored the effects of the Covid-19 pandemic and the war in Ukraine on the local housing rental market in Poznań. He found the increased valuation of leisure-related apartment features such as balconies and private gardens. Łaszek et al. (2024) examined six largest cities in Poland and found that Poland has experienced normal cycles in house prices, i.e. relatively long periods of increases in house prices followed by similarly long periods of decreases in house prices, however, the combination of the COVID-19 pandemic and the war between Russia and Ukraine created a situation that can be described as a multi-cycle.

To fill the literature gap, we investigate the influence of two disasters – both the Covid-19 pandemic and the war in Ukraine – on the housing market in Poland not in one, two or eighteen cities, but across the country and all Polish counties, excluding the counties with city rights, especially excluding capital cities of Polish provinces.

### 3. Data & Methodology

The method of the research was desk analysis in seven steps.

1. Following the literature studies, we searched the Scopus database with keywords ‘Poland AND housing AND market AND disaster’, ‘Polish AND housing AND market AND disaster’, ‘housing AND market AND Poland AND Covid-19’, ‘Polish AND housing AND market AND Covid-19’, ‘Poland AND housing AND market AND war AND in AND Ukraine’, ‘Polish AND housing AND market AND war AND in AND Ukraine’, ‘Poland AND housing AND market AND Covid-19 AND war AND in AND Ukraine’, ‘Polish AND housing AND market AND Covid-19 AND war AND in AND Ukraine’ and Scopus AI database with the sentence ‘The impact of the Covid-19 pandemic and the war in Ukraine on the Polish housing sale market’(Scopus, 2024).



**Figure 1.** Annual consumer price index in Poland in the 2010-2023 period\*.

\*Assumption: 2023 is the base year.

Source: study based on (Statistics, 2025).

2. Next, we carried out a survey in the BDL Statistics Poland for the data covering the area of Poland and the Polish counties in the period (2016-2023) (Local, 2025) concerning the following characteristics:

- the number of inhabitants,
- the total number of apartments sold as primary and secondary market transactions to assess the number of total sales, primary and secondary sales per 1000 inhabitants,
- the total number of apartments sold as primary and secondary market transactions to assess the number of total sales, primary and secondary sales per 1000 inhabitants,
- the median of prices of apartments sold as primary and secondary market transactions,
- the average price of apartments sold as primary and secondary market transactions.

3. After collecting the data, we conducted the analysis in spreadsheet. We calculated the descriptive statistics, the growths, the averages for the periods 2020-2023 and 2016-2019 and subtractions of these averages.

4. Expenditures expressed in PLN at current prices in period 2016–2023 were adjusted to the value of the Annual Consumer Price Index (inflation). The absolute chained increments (Figure 1) were transformed into single-basis relative increments by assuming the 2023 is the base year (Statistics, 2025; Piepiora, 2019; Piepiora, et al. 2023) to compare the data from different years (Table 1).

**Table 1.** Annual consumer price index in Poland in the 2016-2023 period\*.

Year	Annual consumer price index (I)	I/100	The value of the product of indicators
2016	99.4	0.994	1.310102203
2017	102.0	1.02	1.318010265
2018	101.6	1.016	1.292166926
2019	102.3	1.023	1.271817841
2020	103.4	1.034	1.243223696
2021	105.1	1.051	1.202344
2022	114.4	1.144	1.144
2023	100.0	1	1

\*Assumption: 2023 is the base year.

Source: study based on (Statistics, 2025; Piepiora, 2019; Piepiora, et al. 2023).

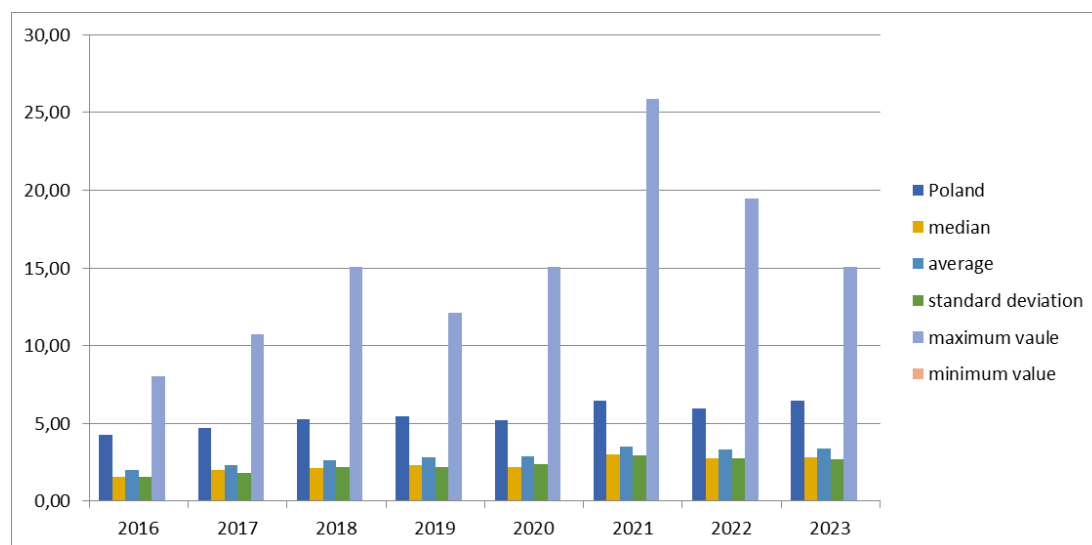
5. Next, we changed the currency from PLN to USD using the exchange rate of the National Bank of Poland of 2023-12-29: 3.9350 PLN = 1 USD (Narodowy, 2025).

6. After conversion of the data, we presented it in charts and maps – cartograms (Pieniążek et al., 2014). Cartograms were generated in the QGIS 3.28 program using the Jenks method (QGis, 2025), excluding the cities with county rights and detailing the counties with decreasing indicators.

7. After the temporal and spatial analysis, conclusions were drawn.

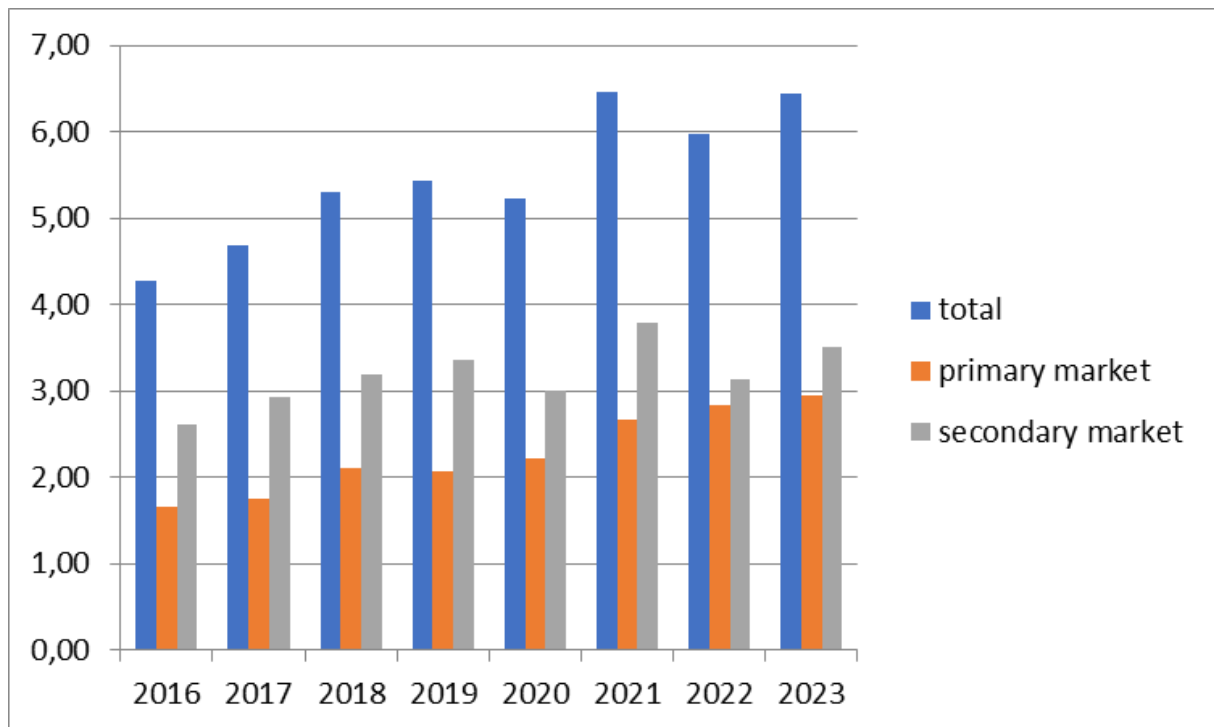
#### 4. Results

The total number of apartments sold as part of market transactions per 1000 inhabitants in Poland increased in the period 2016-2019 (Figure 2). From 2018 it was over 5, then it decreased in 2020 – the year of the first Covid-19 lockdowns – and increased in 2021. It decreased in 2022 again, the year of Russian invasion in Ukraine, and increased in the following year. The same applied for the median and average values for Polish counties.

**Figure 2.** Descriptive statistics for the number of apartments sold as part of market transactions per 1000 inhabitants in Polish counties in the years 2016-2023.

Source: study based on (Local, 2025).

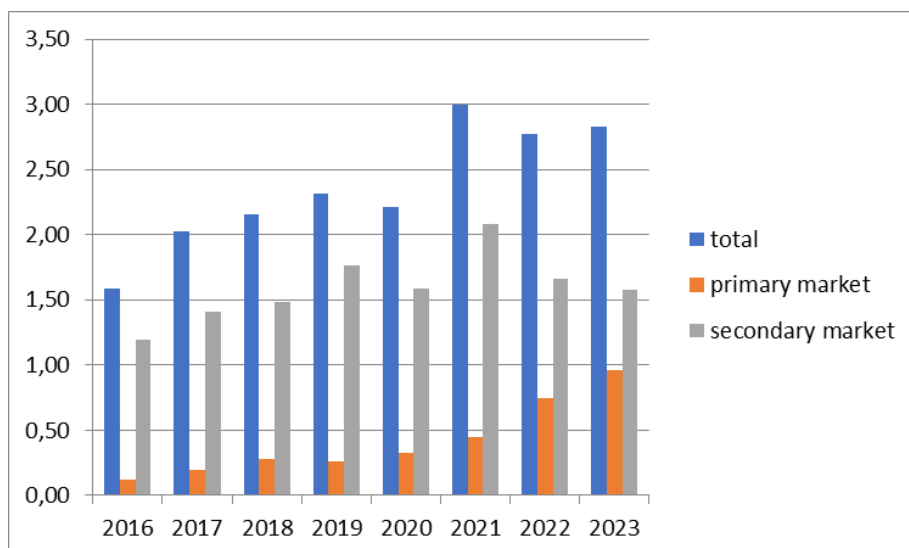
The secondary market dominated in total number of apartments sold as part of market transactions per 1000 inhabitants in Poland (Figure 3). Since 2018 it exceeded 2 transactions per 1000 inhabitants. The transactions on secondary market were mirrored by the total number of transactions.



**Figure 3.** The number of apartments sold as part of market transactions per 1000 inhabitants in Poland in the years 2016-2023.

Source: study based on (Local, 2025).

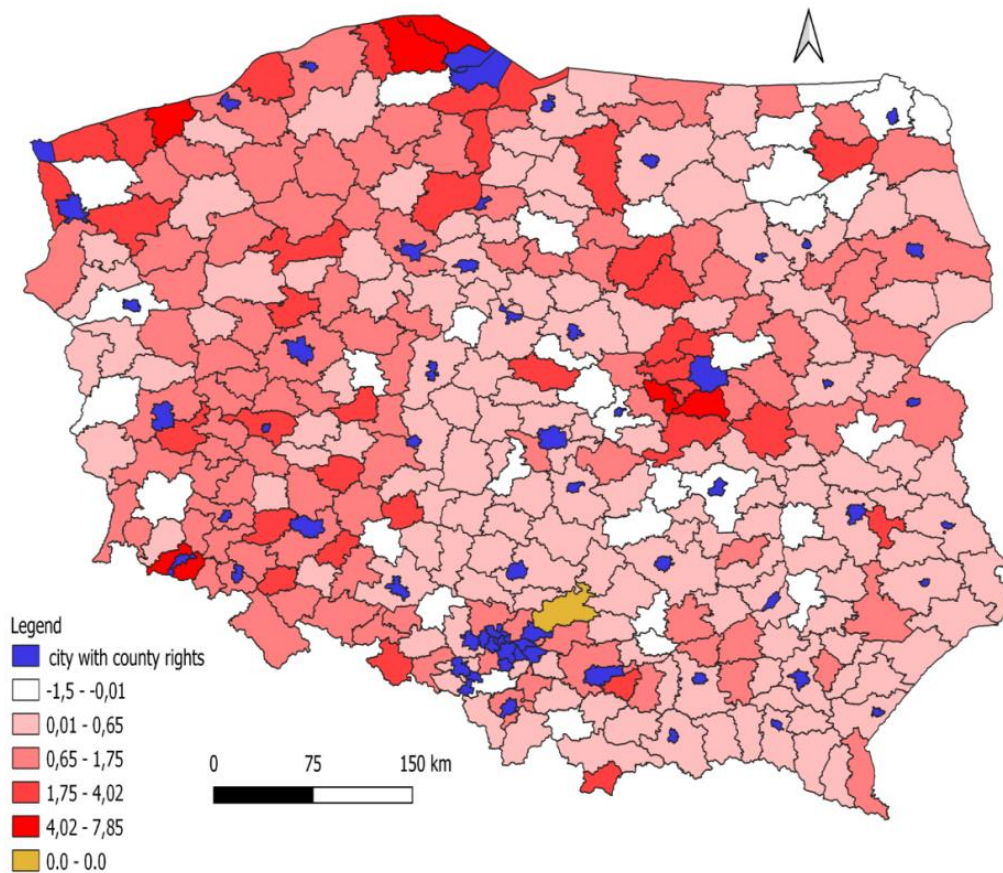
The analogous situation (compare Figure 4 with Figure 3) was in the case of median value of number of apartments sold as part of market transactions per 1000 inhabitants for Polish counties, with at least 2 times smaller number, to the year 2022. In the last of examined years the number of transactions per 1000 inhabitants on the secondary market levelled down.



**Figure 4.** The number of apartments sold as part of market transactions per 1000 inhabitants in average Polish county in the years 2016-2023.

Source: study based on (Local, 2025).

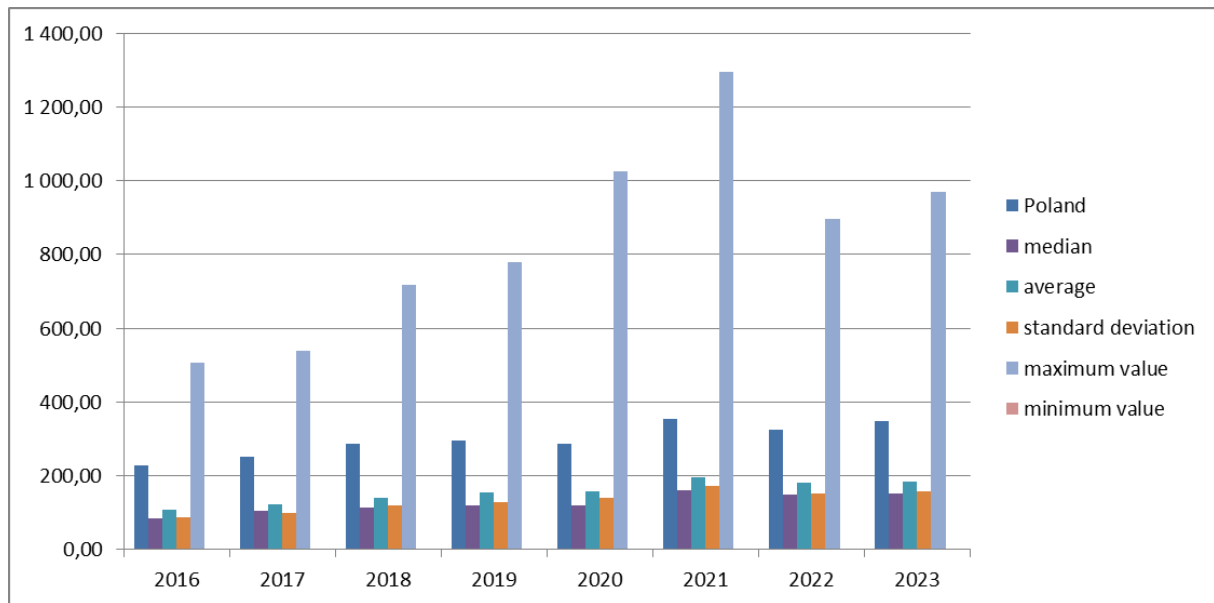
The highest increase of the average of total number of apartments sold as part of market transactions per 1000 inhabitants in Polish counties in the years 2020-2023 comparing to 2016-2019 was in the north-western Poland, especially in counties with the geographical rent, located at the Baltic Sea, in western counties next to the capital city (Warsaw) in the centre of Poland and in the counties in the south of Poland with Tatra and Karkonosze mountains (Map 1).



**Map 1.** The average of number of apartments sold as part of market transactions per 1000 inhabitants in Polish counties - change in the years 2020-2023 comparing to 2016-2019.

Source: study based on (Local, 2025).

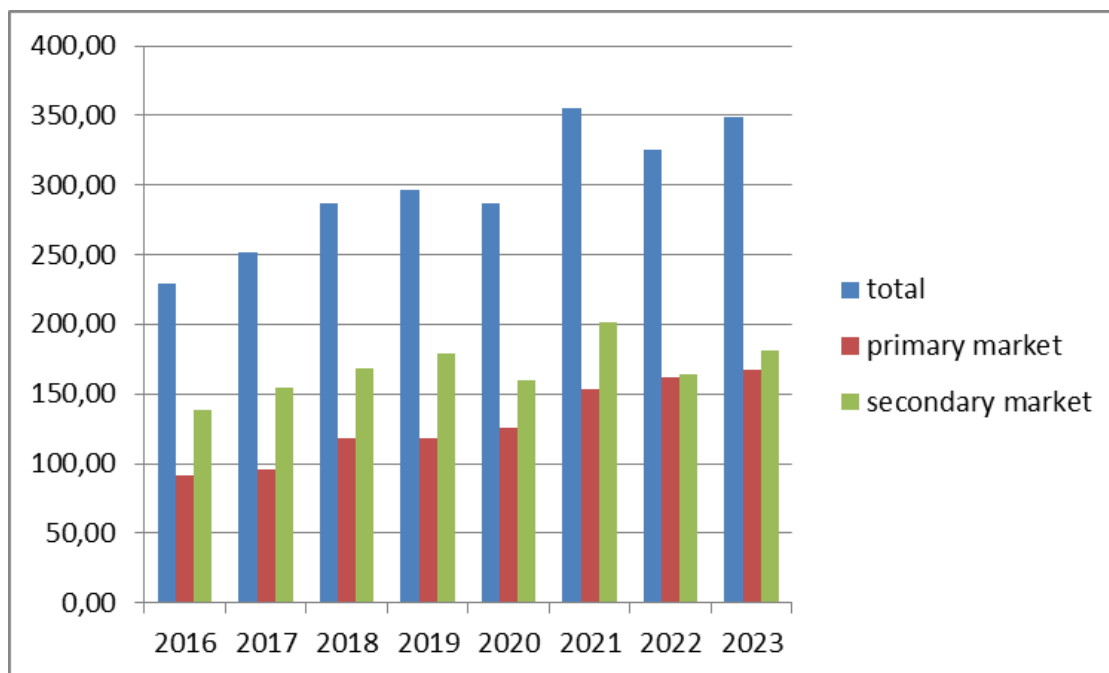
The total area of apartments sold as part of market transactions per 1000 inhabitants in Poland (Figure 5) reflected Figure 2 (total number of apartments sold as part of market transactions per 1000 inhabitants in Poland). The total area was over 200 square meters per 1000 inhabitants in Poland in 2016, and in 2021 it exceeded 300 square meters per 1000 inhabitants.



**Figure 5.** Descriptive statistics for the total area of apartments sold as part of market transactions per 1000 inhabitants in Polish counties in the years 2016-2023.

Source: study based on (Local, 2025).

The secondary market prevailed in total area of apartments sold as part of market transactions per 1000 inhabitants (Figure 6). It reflects two disasters in the analysed period: Covid-19 and war in Ukraine.

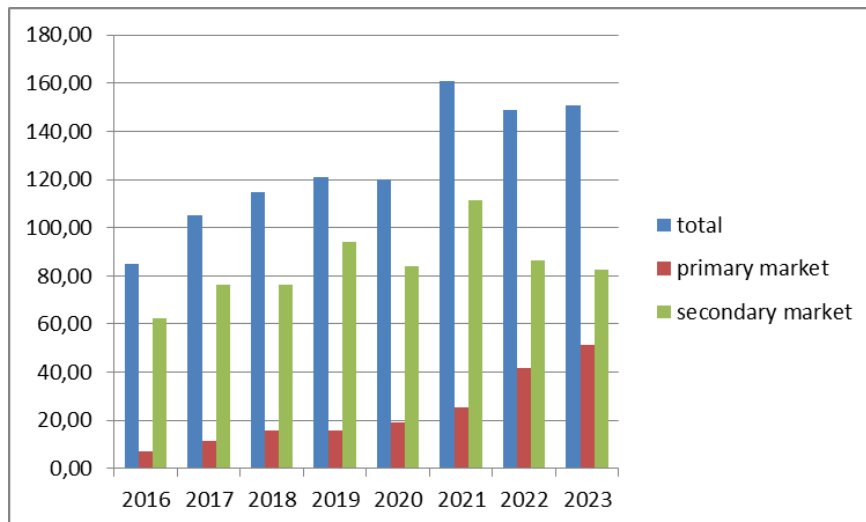


**Figure 6.** The total area of apartments sold as part of market transactions per 1000 inhabitants in Poland in the years 2016-2023.

Source: study based on (Local, 2025).

The similar tendency was in the case of median value of number of apartments sold as part of market transactions per 1000 inhabitants for Polish counties (Figure 7). However, it has at least 2 times smaller number in comparison to the area of Poland.

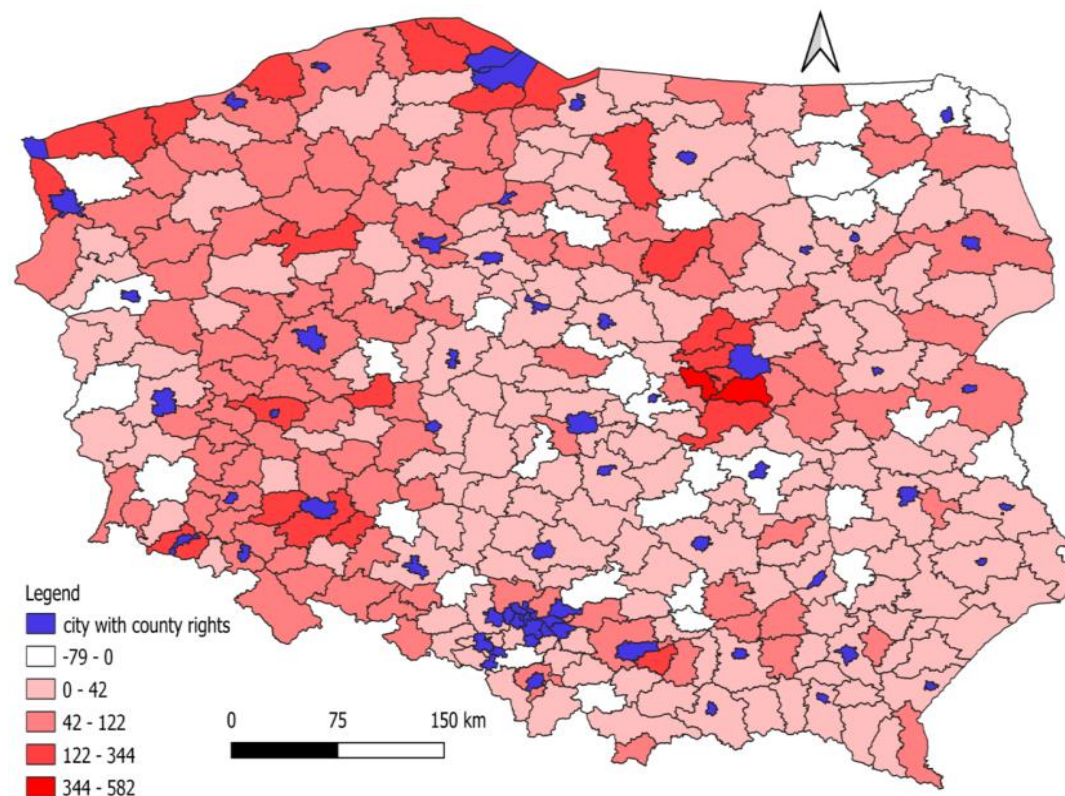




**Figure 7.** The total area of apartments sold as part of market transactions per 1000 inhabitants in average Polish county in the years 2016-2023.

Source: study based on (Local, 2025).

The highest increase of the average of total number of apartments sold as part of market transactions per 1000 inhabitants in Polish counties in the years 2020-2023 compared to 2016-2019 was in western counties next to the capital city (Warsaw) in the centre of Poland and in the western part of Poland. In both cases it concerned especially the counties with the geographical rent such as counties located at the Baltic Sea or in the case of the Karkonosze county with the Karkonosze Mountains (Map 2).



**Map 2.** The average of total area of apartments sold as part of market transactions per 1000 inhabitants in Polish counties - change in the years 2020-2023 comparing to 2016-2019.

Source: study based on (Local, 2025).

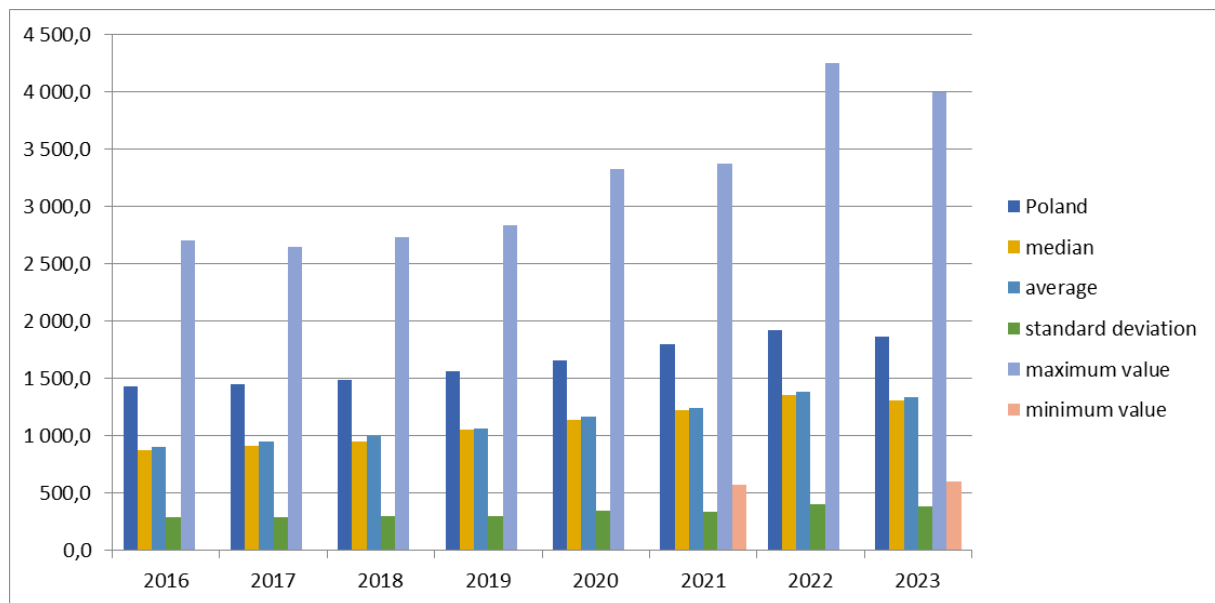
The median value of prices per square meter of apartments sold as part of market transactions in Poland increased in the period 2016-2022 (Figure 8). The highest growth rates were noted for Poland in 2020 (approx. 14%), the year with decreasing the interest rates by the National Bank of Poland in response to the Covid-19 pandemic (Table 2). The median value of prices per square meter of apartments sold as part of market transactions in Poland increased over 20% in next years, comparing to the 2016.

**Table 2.** NBP interest rates in the period 2015-2023

Valid as of	Reference rate (minimum money market intervention rate)	Lombard rate	NBP deposit rate	Rediscount rate	Discount rate
2015					
2015-03-05	1.5	2.5	0.5	1.75	*
2020					
2020-03-18	1	1.5	0.5	1.05	1.1
2020-04-09	0.5	1	0	0.55	0.6
2020-05-29	0.1	0.5	0	0.11	0.12
2021					
2021-10-07	0.5	1	0	0.51	0.52
2021-11-04	1.25	1.75	0.75	1.3	1.35
2021-12-09	1.75	2.25	1.25	1.8	1.85
2022					
2022-01-05	2.25	2.75	1.75	2.3	2.35
2022-02-09	2.75	3.25	2.25	2.8	2.85
2022-03-09	3.5	4	3	3.55	3.6
2022-04-07	4.5	5	4	4.55	4.6
2022-05-06	5.25	5.75	4.75	5.3	5.35
2022-06-09	6	6.5	5.5	6.05	6.1
2022-07-08	6.5	7	6	6.55	6.6
2022-09-08	6.75	7.25	6.25	6.8	6.85
2023					
2023-09-07	6	6.5	5.5	6.05	6.1
2023-10-05	5.75	6.25	5.25	5.8	5.85

\* Monetary Policy Council decided to introduce on January 1, 2010, a discount rate of bills of exchange accepted from banks for discount by the NBP. The Council set the discount rate for bills of exchange at 4.00% per annum.

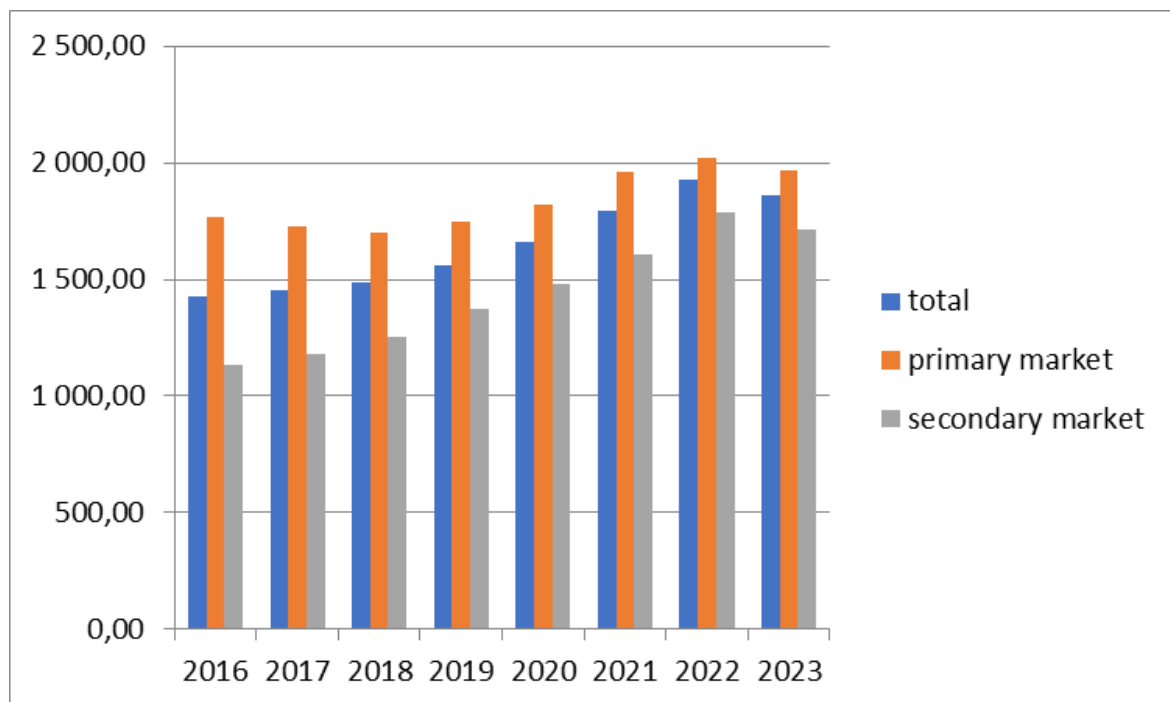
Source: study based on: (Historic, 2025; Informacja, 2025, Dobrowolski et al., 2022).



**Figure 8.** Descriptive statistics of the median value of prices per. sq. meter of apartments sold as part of market transactions in Poland for counties in Poland in the years 2016-2023 in 2023 USD.

Source: study based on (Local, 2025; Statistics, 2025).

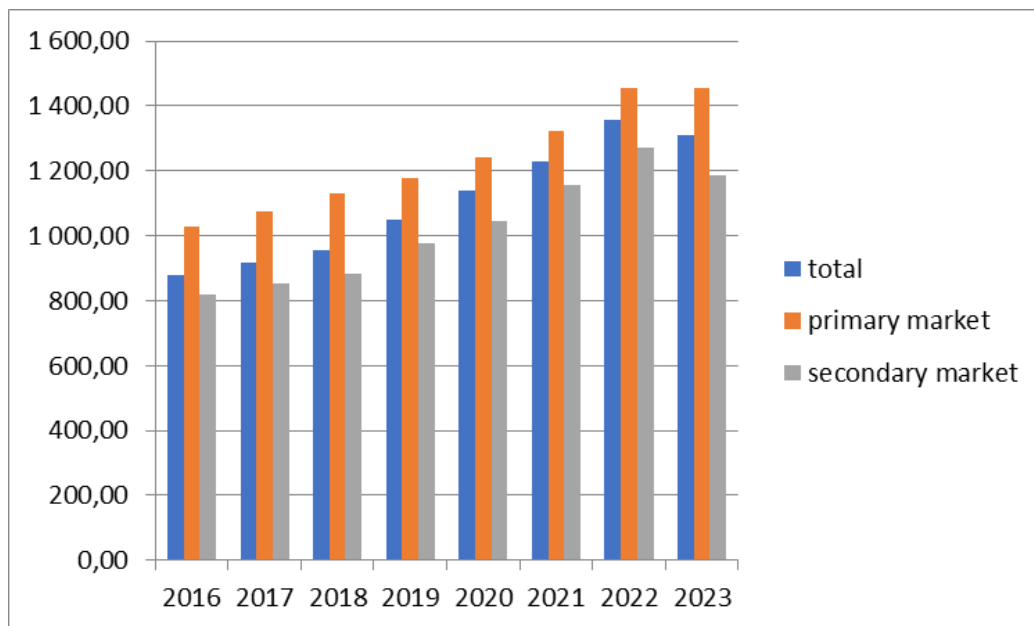
The tendency of the secondary market was like the total market (Figure 9). The highest median price per square meter was noted in 2022; for the primary market it was over 2 thousand USD per square meter, for the secondary market 1 785, and for total market 1 923, respectively.



**Figure 9.** The median of prices of apartments sold as part of market transactions in Poland in the years 2016-2023 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

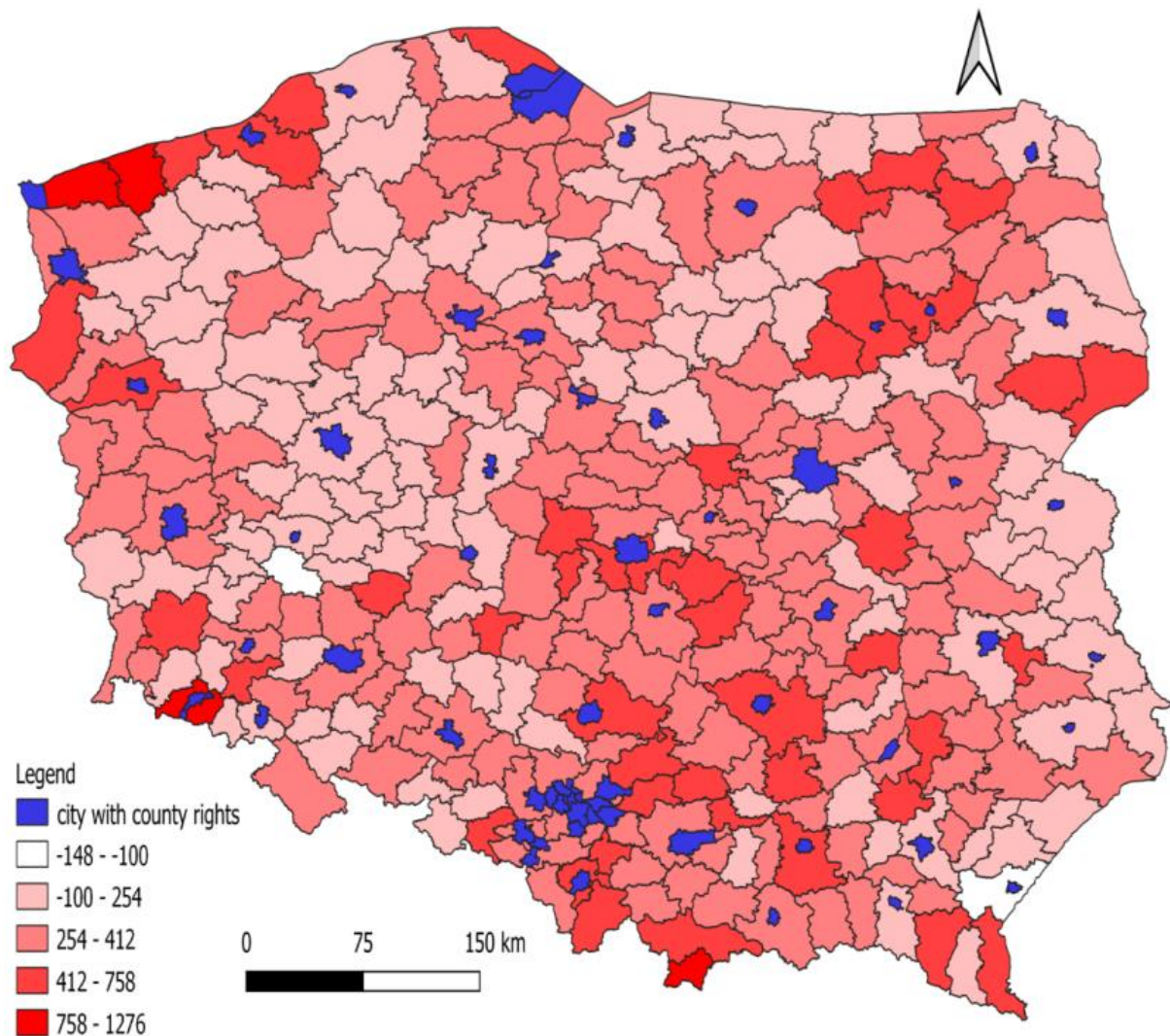
The similar tendency was in the case of median value of median of prices per square meter of apartments sold as part of total market transactions for Polish counties (Figure 10). The highest average price of apartments was noted in 2022 for the secondary market, approx. 1272 USD, and for total market 1 356 USD, respectively. In 2023 median value of median prices per square meter on the primary market was highest, 1457.05 and increased from 1453.91 in 2022.



**Figure 10.** The median price per square meter of apartments sold as part of market transactions in average Polish county in the years 2016-2023 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

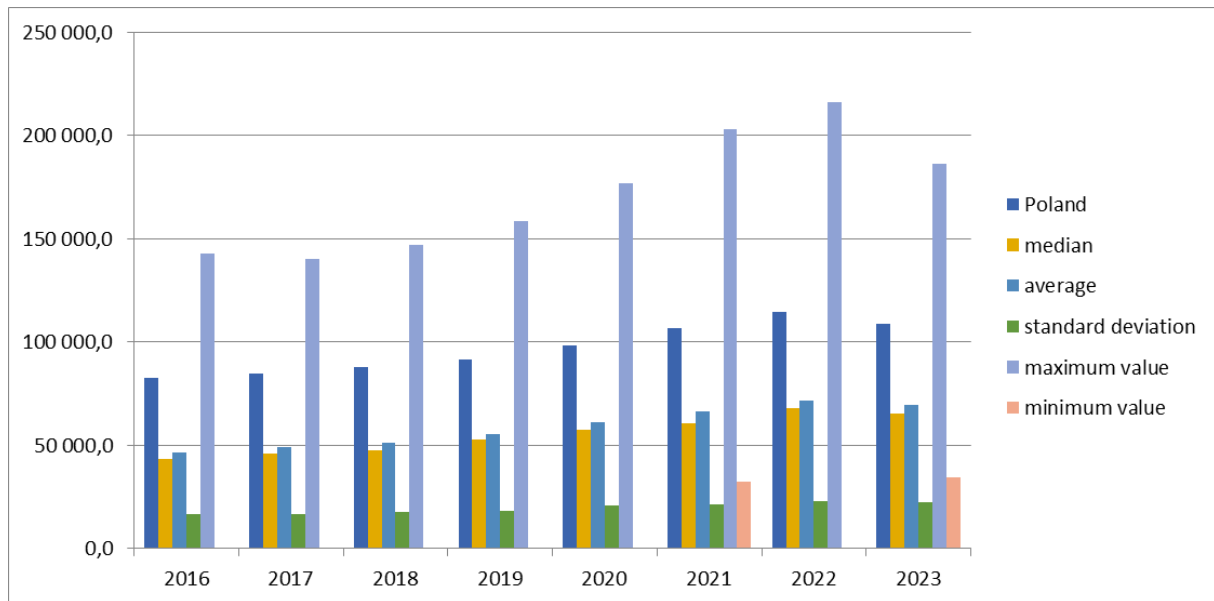
The highest increase of the average of median of prices per square meter of apartments sold as part of market transactions in average Polish county in the years 2020-2023 compared to 2016-2019 in 2023 USD was generally in the counties located in the western, central, southern and north-eastern Poland with the geographical rent, usually neighbouring with the counties with city rights and/or mostly with the national parks such as counties located at the Baltic Sea, the Masurian Lake Land, the Białowieża Forest or in the Tatra Mountains, the Karkonosze Mountains, the Beskid Żywiecki or the Bieszczady Mountains (map 3).



**Map 3.** The average of median of prices per square meter of apartments sold as part of market transactions in average Polish county in the years 2020-2023 compared to 2016-2019 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

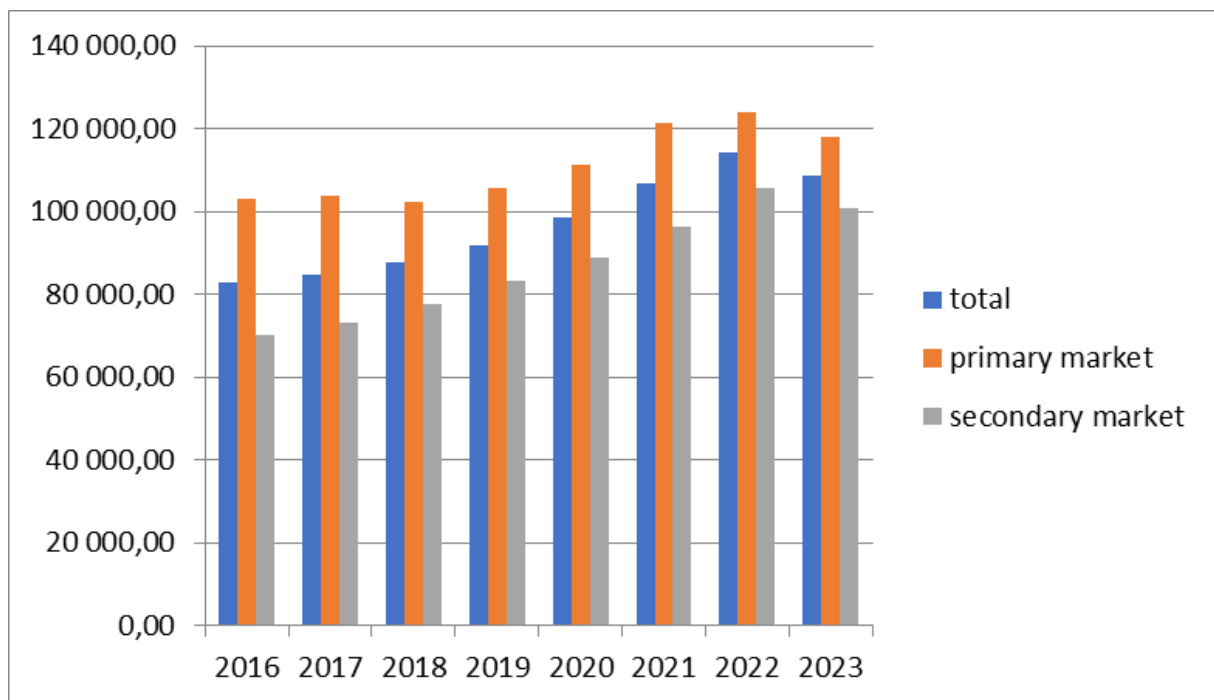
The average price of apartments sold as part of market transactions in Poland increased in the period 2016-2022 (Figure 11) and is the same in tendency to the Figure 8 with the median value of prices per square meter of apartments sold as part of market transactions in Poland. The highest growth rates were noted for Poland in 2020 (approx. 16%) and over 20% in next years, comparing to 2016.



**Figure 11.** Descriptive statistics of the average price of apartments sold as part of market transactions in Polish counties in the years 2016-2023 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

The tendency of the secondary market was like the total market (Figure 12). The highest average price of apartments was noted in 2022; for the primary market it was approx. 124 thousand USD per square meter, for the secondary market, approx. 106 thousand USD, and for total market approx. 114 thousand USD, respectively.

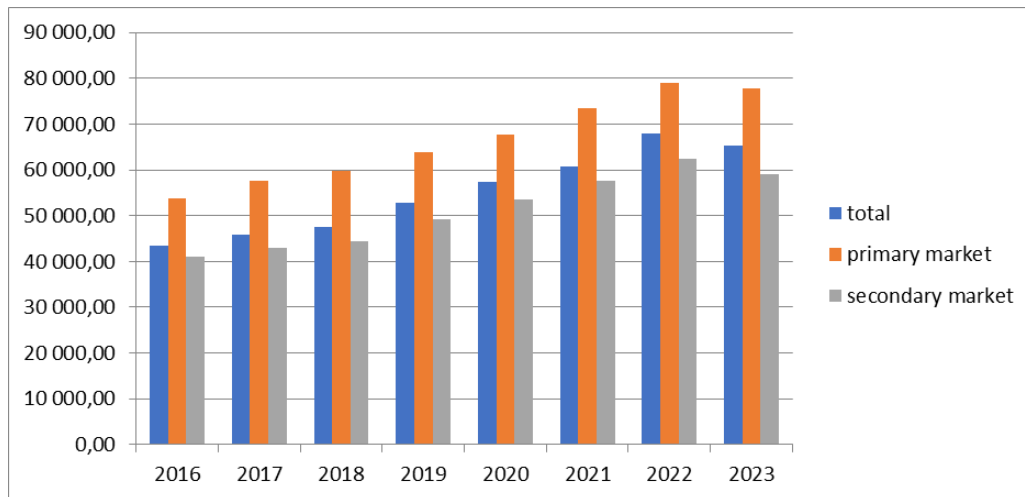


**Figure 12.** The average price of apartments sold as part of market transactions in Poland in the years 2016-2023 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

The average price of apartments sold as part of market transactions in average Polish county increased in the period 2016-2022 (Figure 13). The highest average price of apartments was noted in 2022; for the primary market it was approx. 79 thousand USD per square meter, for the secondary market, approx. 62 thousand USD, and for total market approx. 68 thousand USD, respectively.

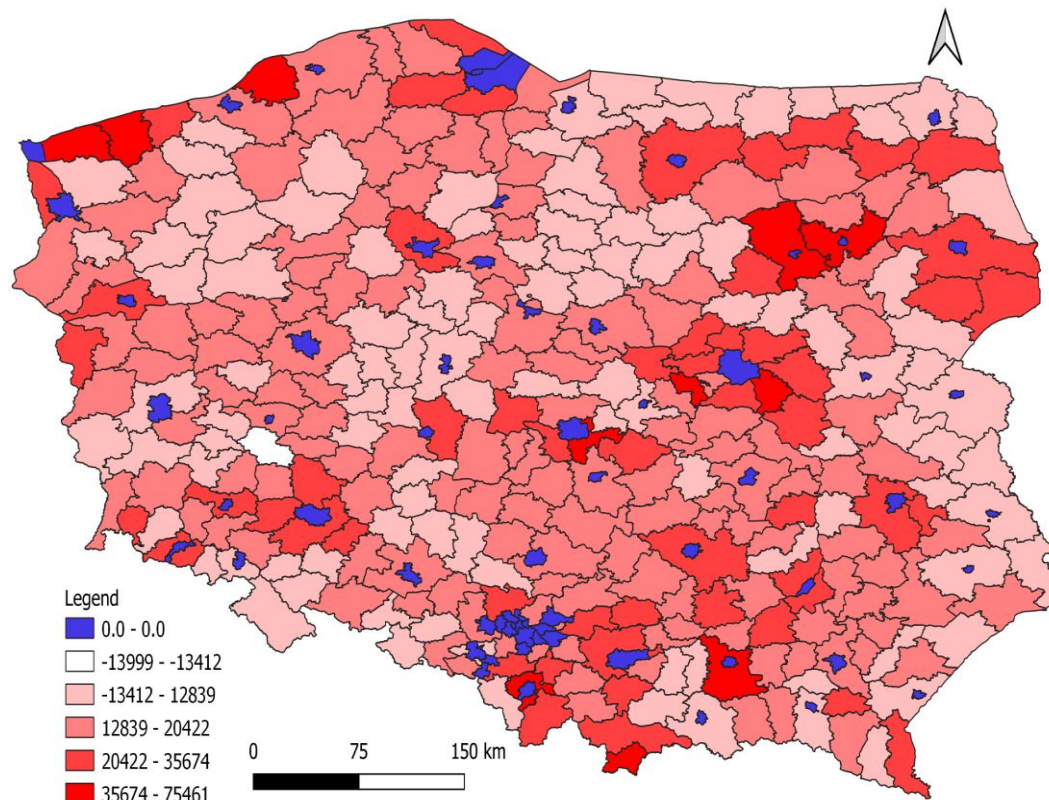




**Figure 13.** The average price of apartments sold as part of market transactions in average Polish county in the years 2016-2023 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

Map 4 is like Map 3. The highest increase of the median of the average price of apartments sold as part of market transactions in average Polish county in the years 2020-2023 comparing to 2016-2019 in 2023 USD was generally in the counties located in the western, central, southern and north-eastern Poland with the geographical rent, usually neighbouring the counties with city rights and/or mostly with the national parks such as counties located at the Baltic Sea, the Masurian Lake Land, the Białowieża Forest or in the Tatra Mountains, the Karkonosze Mountains, the Beskid Żywiecki or the Bieszczady Mountains.



**Map 4.** Change of the median value of the average price of apartments sold as part of market transactions in average Polish county in the years 2016-2019 comparing to 2016-2019 in 2023 USD.

Source: study based on (Local, 2025; Statistics 2025).

## 5. Discussion

The literature review shows that the studies of the Covid-19 pandemic impact on housing market focused on the rental price decline, the divergence in primary sales, the growth in secondary sales; the increased valuation of apartments with leisure-related features (Tomal and Marona, 2021; Trojanek et al., 2021; Tomal, 2023; Hebdzyński, 2024b). The studies of the war in Ukraine impact on housing market concerned, the demographic shock, the inflation-driven interest rate hikes, the increased rents due to refugee influx (Trojanek and Gluszek, 2022; Łaszek et al. 2024, Gluszek and Trojanek, 2024; Hebdzyński, 2024a). Our study is complementary to above mentioned studies.

Future studies shall deepen the analysis of Poland and extend the analysis to other countries. The study limitation is usage the data from the BDL database of the Statistics Poland database.

## 6. Conclusions

The following conclusions can be drawn:

1. The disasters such as the Covid-19 pandemic and the war in Ukraine influenced the Polish housing market.
2. The total number of apartments sold as part of market transactions per 1000 inhabitants in Poland and the total area of apartments sold as part of market transactions per 1000 inhabitants in Poland decreased in 2020 and 2022 because of these disasters.
3. The highest growth rates of the median value of prices per square meter of apartments sold as part of market transactions in Poland and the average price of apartments sold as part of market transactions in Poland were noted in the period 2020-2023, comparing to the 2016.
4. The highest increase of the average of total number and area of apartments sold as part of market transactions per 1000 inhabitants in Polish counties in the years 2020-2023 comparing 2016-2019 was in the western part of Poland, especially counties with the geographical rent such as counties located at the Baltic Sea or in the case of the Karkonosze county with the Karkonosze Mountains and in western counties next to the capitol city (Warsaw) in the centre of Poland.
5. The highest increase of the average of median of prices per square meter and average price of apartments sold as part of market transactions in average Polish county in the years 2020-2023 comparing to 2016-2019 in 2023 USD was generally in the counties located in the western, central, southern and north-eastern Poland in the counties with the geographical rent, usually neighbouring the counties with city rights and/or mostly with the national parks such as counties located at the Baltic Sea, the Masurian Lake Land, the Białowieża Forest or in the Tatra Mountains, the Karkonosze Mountains, the Beskid Żywiecki or the Bieszczady Mountains.

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