

# THE SIZE OF THE RENTAL HOUSING SEGMENT IN POLAND AND ITS MAIN DETERMINANTS

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## ABSTRACT

Our research into the fast-growing segment of the rental market fits perfectly with the current wave of excitement. In this research, we attempt to answer a fundamental question: how large is the rental segment in Poland? To our surprise, the answer to this key question remains wrapped in mystery, with an absence of continuous studies disclosing its true size.

Undaunted, in this paper we took up the challenge to develop a method that would give us a clear answer. Using Eurostat statistics, we develop a methodological framework for estimating the size of the rental segment. We acknowledge that Eurostat data possesses certain limitations, yet serves as a valuable resource for fulfilling our goal under the proposed methodology. In our approach, we determine the size of Polish rental segment between 2007 and 2021. To validate our findings, we dived into the complex relationship between the size of the rental segment and households. Applying linear regression, we sought to unravel the main determinants influencing not only the overall housing market but also the dimensions of the puzzling rental segment. The proposed method proves to be successful and answers the research question. However, it is important to emphasize that the presented results are estimates that give an impression of the elusive size of the rental housing segment and not exact measurements. Moreover, the flexibility of the proposed methodology is promising and allows similar studies to be conducted in different geographical contexts.

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## 1. Introduction

Our research primarily focuses on the goal of determining the size of the residential rental market in Poland. To address this research problem, we formulate a hypothesis that supports the feasibility of estimating the number of rented dwellings using data from Eurostat's EU-SILC survey, although a statistical redesign is necessary, as it focuses on households rather than the housing market. Consequently, the central objective of our study is the development of a statistical method for measuring the size of the rental housing segment in Poland.

Our preliminary review of existing literature reveals worrying results suggesting a lack of definitive findings on the volume of rented apartments in the

Polish housing market on market terms. It is essential to note that our study does not examine dwellings provided by the local authorities, thus underlying the need to narrow down the scope. Nonetheless, the observations suggest that the rental housing encompasses a potentially significant number of apartments – several hundred thousand. This creates significant doubts and challenges for further research.

The introduction highlights that the rental sector of the real estate market has only been covered to a limited extent, as evidenced by the lack of publications in Google Scholar, with only 4.6% of publications covering the residential rental market in Poland between 2015 and 2023. This lack of scholarly interest may be due to the difficulties in accessing reliable data. Nonetheless, the rental sector in Poland is

growing, which is confirmed by the limited academic research, industry reports and opinions of market experts. Rental housing is increasingly used by companies as a strategic element for business expansion, while the policies of the Polish government in the recent years have emphasized the importance of rental housing in the context of social policy. Our comprehensive study of the residential rental sector in Poland therefore aims to fill this knowledge gap and provide an estimate of the size of the sector.

In this context, our research aims to depict the current state of the residential rental sector, with a primary focus on its scale. Using data from Eurostat and the Ministry of Finance our methodology is carefully designed to ensure accurate measurements. Consequently, the methodology used facilitated the determination of the size of the segment analyzed in the real estate market for the period 2007-2021. It is worth noting that our results are largely consistent with the average estimates of other researchers and market analysts, suggesting that our conclusions are in line with the prevailing views of most experts in this market. Thus, our results can serve as a basis for further research on the Polish apartment rental segment. In addition, our results were verified by linear regression mechanisms, examining the main determinants. However, it should be clearly emphasized that these results are estimates, mainly due to the methodology used and the nature of the Eurostat data. The data, designed to assess the general situation of households, represent the whole country, making it challenging to analyze local markets or specific cities. Nevertheless, our estimates suggest a similar size of the Polish rental sector. We also expect that the methodological framework and underlying data set used in this study will be useful for estimating the size of the housing rental segment in other European Union (EU) countries.

## 2. Literature review

The real estate market in Poland is an area of the economy that has been relatively poorly studied. Complicated market characteristics and hard-to-reach statistical data lead to inaccuracies. The real estate market is complex, making research challenging (Ludwiczak, 2017). Housing heterogeneity is explained by technical, governance, socio-economic and ecological differences (Vanags et al., 2017). Analyzing the housing rental sector is more difficult than other sectors of the real estate market. Liu et al. (2021) conducted an analysis on academic interest in

different sectors of real estate rentals and concluded that the majority of research covered UK, USA, Chinese markets, with hot topics including household asset allocation, housing bubbles, and the impact from economic fundamentals. This makes the segment of the rental housing an area of the economy that has been poorly described in the scientific literature for other countries, mostly because of the lack of systematic and reliable data. In addition, it should be noted that, among the small number of publications considering the rental housing, there are even fewer studies attempting to quantify this particular market segment. In principle, this is an issue that has not been addressed. A very small number of publications attempt to give estimates of the size of this segment; however, they are incomplete and do not bear the characteristics of data continuity. For example, Gilbert (2016) suggests the global size of the rentals that accommodate about 1.2 billion people. Conversely, there have been several attempts to determine the size of the Polish rental market. The Dol and Haffner (2010) report shows that, in 2008, Poland accounted for 12% of the total stock of housing paid by tenants at market rent. Gilbert (2016) provides some information on the proportion of tenant household by country showing that, in 2009, there were 31% tenants in Poland (Gilbert, 2016). Salamon and Muzioł-Węclawowicz (2015) state that, in 2011, there were 575,466 of rented apartments owned by private persons in this country. Similarly, in his research on changes in the structure of the rental market influencing its size, Rubaszek (2019) suggests that the rental market share across European countries is quite diverse and in 2016 was equal around 4.5%. Other studies show that, in 2017, less than 5% of citizens lived in apartments rented at market prices in Poland, and nearly 12% of the population used reduced-rent or rent-free apartments (Surówka, 2018). Other studies provide estimates for 2018, which show that the size of the rented housing market varies approximately 4% of residents and equals 1 million rented apartments (Groeger, 2019). The estimated number of apartments for rent in 2020 with market rental rates equals 1,210,080 units, i.e. 8.3% of the total stock (Bojęć et al., 2020). These few examples and inconsistency with reliable data already reveal the difficulty of studying the size of the residential rental segment in Poland.

Through analyzing the rental housing issue in different markets, Gilbert (2009) concludes that the topic has been neglected by most governments because of the course in an agenda that promotes

home ownership. This view is also supported by Rubaszek (2019), who proposes that regulations in Poland have not promoted the development of housing rentals. At present, the ownership housing model is still dominant in Poland. In fact, Poland is in the top 5 European Union (EU) countries with the highest shares of ownership, with a relatively low fraction of housing rentals. According to Eurostat, this share in 2021 stood at 13.2%. The rental market formation in Poland is characterized by some institutional developments that occurred in post-communist development. According to Rubaszek (2019), the most important policy for all post-communist countries was the transfer of public real estate to private ownership, called privatization. The next transition was the development of the mortgage market, which was brought about by changes in the financial sector. This enhanced the proportion of houses with mortgages, which increased fourfold in Poland between 2007 and 2016. As a result, this agenda has not been helpful in solving housing issues and coping with the growing number of tenants both across Poland and other countries suggests that the demand for housing rentals has been increasing in some countries. For example, there were 8 countries with a lower than 5% share of people renting their homes in 2016. According to Eurostat, in 2021, there were only two countries with a share of people renting their homes lower than 10%. The growing groups of tenants can be divided into two forms. Members of society such as youth, families, and migrants that cannot afford mortgages and the group of tenants with renting preferences for flexibility reasons. The increase of such groups also confirms the need for rental housing, which supplements ownership instead. Similarly, Tomal (2020) verifies that the proportion of tenants in Poland is expected to further rise. Recent shocks in the global economy, such as the impact of COVID-19, rising energy prices, heightened inflation, and increased interest rates, have affected the housing price rise and have further hindered access to home ownership in various countries. These events increase the need for an alternative to ownership, i.e. rentals, which highlights the growing need for the topic to be addressed as an essential part of the real estate market. Studies also suggest that housing rentals are an important part of the real estate market as they have an indirect impact on the macroeconomic outcome. For example, availability of housing reduces the risk of a house price bubble (Arce & Lopez-Salido, 2011), a greater proportion of rental properties in the

market can help stabilize fluctuations in business cycles (Czerniak & Rubaszek, 2018), while well-established and mature rental markets can help mitigate disturbances caused by economic and demographic factors in the housing sector (Cuerpo et al., 2014; Czerniak & Rubaszek, 2018).

### 3. Material and methods

Statistical data from various sources are employed in this study, with particular emphasis placed on the statistics derived from EU SILC surveys, which are periodically conducted by Eurostat. These surveys provided insights into the distribution of the population based on such factors as housing ownership, household type and income groups (Mack, 2016). Specifically, the data extracted from these surveys undergoes filtration, focusing our extraction only on tenure status and exclusively considering renting deals at market prices. In addition, this data set allows us to differentiate the households by type according to the number of adults and children. Such filtered data subsets shows the proportion of the population engaged in rental housing for the needs of their households. However, it is important to note that this proportion of data does not reveal the number of rented apartments. To address this limitation, we perform additional calculations by incorporating Eurostat's population statistics. Furthermore, we use the division of households by the number of people:

- 1 A – 1 adult without children,
- 1 A & CH – 1 adult with children,
- 2 A – 2 adults without children,
- 2 A & 1 CH – 2 adults and 1 child,
- 2 A & 2 CH – 2 adults and 2 children,
- 2 A & 3+ CH – 2 adults and 3 or more children,
- 3+ A – 3 and more adults without children,
- 3+ A & CH – 3 and more adults with children.

On this basis, the number of rented dwellings at market prices is calculated based on Eurostat surveys ( $RHS_{EU,t,a}$ ) in individual years ( $t$ ) according to the formula:

$$RHS_{EU,t,a} = \frac{PSPR_t \times POP_t}{NAH_a} \quad (1)$$

where:  $PSPR_t$  is the percentage of the population renting apartments for their household,  $POP_t$  is the population in Poland the year  $t$  and  $NAH_a$  is the number of adults in the household.

The number of adults is adopted according to the breakdown of Eurostat households (1, 2 or 3 adults). In this case, index  $a$  means one of the three types of households according to this division. On this basis, it

is possible to calculate the number of rented apartments according to the following formula:

$$RHS_{EU,t} = \sum_{a=1}^8 RHS_{EU,t,a} \quad (2)$$

where 8 represents a closed set of household types differentiated by Eurostat. Here, we already consider a detailed breakdown of households by the number of adults and the number of children.

As EU SILC research has its limitations (Berger & Schaffner, 2017; Lacovou et al., 2012), the study additionally uses data from the Ministry of Finance. These data come from annual information on the PIT settlement and annual information on flat-rate tax on recorded revenues. The key information here is the number of taxpayers who, in the given tax year, disclose revenues from lease, sublease, or other similar agreements. On the one hand, these data reveal the number of taxpayers who rent their apartments (supply side in the rental segment). These data include taxpayers with income from leasing assets. In 2010, Poland implemented the occasional lease agreement because of a legal change (Frost, 2016). This means that the number of taxpayers disclosing their revenues in this respect increases from year to year. The data from the Ministry of Finance is increasingly important for estimating the number of landlords in Poland. Therefore, we incorporate it in this study.

It should be stressed, however, that these data additionally reveal the existing grey area, seeing as how not all taxpayers disclose rental income (Kucharska-Stasiak, 2016). However, this practice has changed in the period 2007-2021. Nevertheless, the increase in taxpayers disclosing this type of income is not synonymous with the fact that the growth of the rental segment in Poland is characterized by the same dynamics. It is rather the result of legal changes that are becoming more favorable for landlords, especially after 2010. This does not, however, change the fact that the number of taxpayers with rental income is important information for determining the size of this segment.

In this context, we compare calculated values  $RHS_{EU,t}$  with the number of taxpayers renting apartments ( $NTRD_t$ ). This figure also includes the number of taxpayers who disclosed income from occasional rental. For the correctness of the comparison of these values, we apply zero unitarization. This is a method of data standardization which does not eliminate outliers of variable values. It does not have the actual distribution of the phenomena described. This allows statistical data to

be standardized into variables with a unified range of variability (Bittern et al., 2019). In this context, we apply the following formula:

$$\overline{uv}_{b,t} = \frac{uv_{b,t} - \min(UV_{b,t})}{\max(UV_{b,t}) - \min(UV_{b,t})} \quad (3)$$

where:  $\overline{uv}_t$  is the base variable zeroed unitarization for each year based on the base variables  $uv_{b,t}$ .  $UV_{b,t}$  defines the entire range of the matrix of two underlying variables in each year.

The basic variables are  $RHS_{EU,t}$  and  $NTRD_t$ . In addition, the  $b$  index defines one of the two base variables, which were standardized according to the method used. The calculated values  $\overline{uv}_t$  are used to determine the weights according to which the weighted average  $RHS_t$  values from individual base variables are calculated. These values ultimately determine the estimated size of the housing rental sector in each individual year.

$$RHS_t = \frac{RHS_{EU,t} \times \overline{uv}_{1,t} + NTRD_t \times \overline{uv}_{2,t}}{\overline{uv}_{1,t} + \overline{uv}_{2,t}} \quad (4)$$

#### 4. Results

We apply our proposed methodological framework in order to determine the size of the residential rental segment in Poland. Despite the scarcity of available data, we perform calculation based on selected statistical data (see Fig. 1). The combination of the two data sources was found to have a relative benefit for the final results.

The estimated values based on data from EU SILC surveys are characterized by quite high flexibility to macroeconomic factors. This is clearly visible in the period 2011-2012 and in 2020. The rental sector experienced robust growth as the aftermath of the financial crisis period, which had a negative impact on the real estate market, particularly in the form of loan distribution (Hartmann, 2015). 2020 was the time of the COVID-19 pandemic when the rental sector was particularly affected by sanitary and epidemiological restrictions. Other real estate market researchers, however, do not identify such strong shifts in these periods (Derkacz & Gajda, 2022; Tomal & Marona, 2021). Subjective perceptions are always more intense than real changes in the market.

The second data source used in this study pertains to the number of taxpayers disclosing rental income. Notably, this data exhibits an almost linear increase trend, although it does not form a comprehensive representation of the size of the residential rental segment in Poland. Instead, it reveals valuable insights into the taxpayers' decisions to disclose their income



in this respect. The statistics compiled by the Ministry of Finance demonstrate the changes in taxpayers driven by the introduced legal changes (Langenmayr, 2017), particularly since the introduction of the institution of occasional rental in 2010. It is important to note that the number of people in this group is included in the total number of taxpayers disclosing rental income. Nonetheless, these data are important as they provide partial information on the size of the apartment rental segment in Poland.

Figure 2 presents the results of the calculated size of the researched segment of the real estate market,

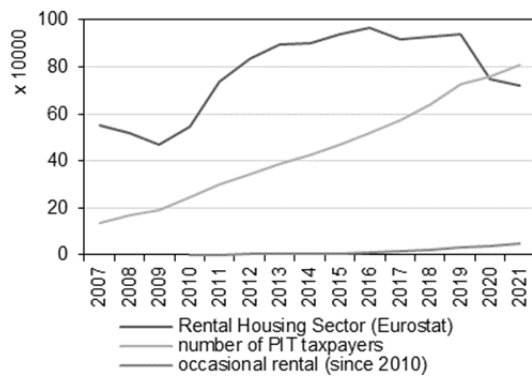


Fig. 1. Basic variables to calculate the size of the rental housing sector in Poland. Source: Eurostat, Ministry of Finance Poland.

with detailed values provided in Table 1. The  $RHS_t$  line has smoothed in relation to Eurostat data thanks to the employed methodology. Although some fluctuations persist, they are closely aligned with expert analyses of the market. In 2021, the calculated size of the rental segment was 766,915 rented apartments, reflecting an increase of 2.0% y/y, and 38.7% compared to the base year 2007. Comparing the obtained results with both market reports and previous studies suggests that the proposed method gives similar results, with the exception of the most extreme cases.

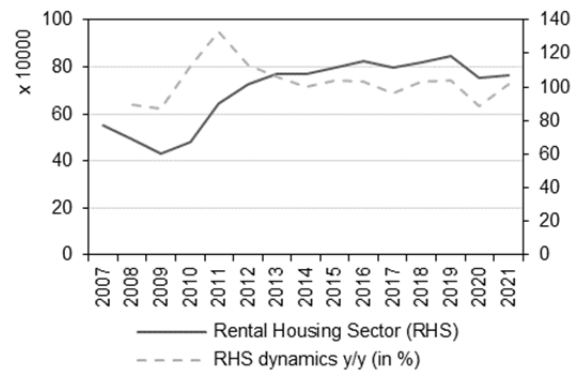


Fig. 2. Size of Rental Housing Sector and dynamics y/y. Source: own study.

Table 1

	Size of Rental Housing Sector and dynamics y/y														
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
RHS (x1000)	552.8	493.3	429.9	481.5	641.7	724.1	768.0	768.9	799.6	826.4	794.3	817.0	847.7	751.9	766.9
DRHS y/y (%)	-	89.2	87.1	112.0	133.3	112.8	106.1	100.1	104.0	103.4	96.1	102.9	103.8	88.7	102.0
DRHS 2007 = 100 (%)	100.0	89.2	77.8	87.1	116.1	131.0	138.9	139.1	144.6	149.5	143.7	147.8	153.3	136.0	138.7

Source: own study.

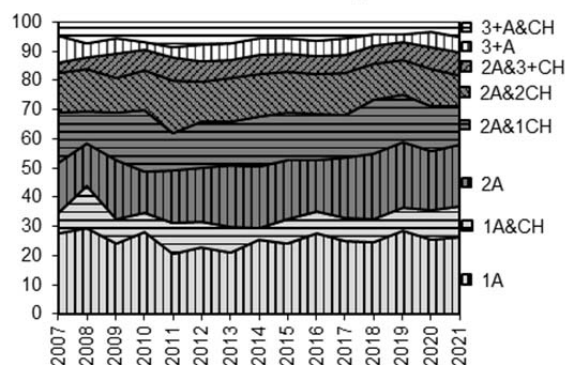


Fig. 3. Structure of the housing rental sector by household type, cumulative chart (in %). Source: own study.

The adopted method also allows for the analysis of the structure of the rental housing segment based on household types (see Fig. 3). It turns out that the largest group of tenants consists of childless singles. In 2021, this group accounted for 26.3% of all tenants. In this particular group, the largest demographic

consists of unmarried females, accounting for 60.0% of all single individuals without children during that year. The second largest group of tenants relates to households of two adults without children, representing 21.1% of all tenants in 2021. Subsequently are households with two adults and one

child (13.2%), two adults with two children (10.5%), and one-person households with children (10.5%). The smallest group of tenant households consists of three or more adults, with as well as without children, with each group representing 5.3% of the total population. These results strongly correlate with research on the reasons for renting apartments by Poles (Matel, 2021; Żróbek-Róžańska & Szulc, 2018), indicating mainly professional motives, such as relocation to another city (mainly group 1A). Financial constraints drive young families to make rental arrangements for apartments as they cannot afford to buy their own apartment or house. This category mainly includes two-person households without children or with one child.

In order to verify the relationship between the size of the rental segment and the households, the obtained results are subjected to correlation analysis. First, the dependence of the  $RHS_t$  value on the total number of adults within households, irrespective of the number of children, is examined (see Fig. 4) The analysis reveals that, during the period from 2007 to 2021, single households had the greatest impact on the size of the rental housing segment. This dependence exhibits a positive correlation with the

coefficient of determination  $R^2 = 0.8618$ . The second significant group represents households with two adults ( $R^2 = 0.8496$ ). The values of these coefficients indicate the substantial and statistically significant impact of these factors on the size of the apartment rental segment in Poland. In contrast, households with three or more adults display a completely different result ( $R^2 = 0.3555$ ), indicating an insignificant relationship.

Further, a similar analysis is performed on specific types of households, accounting for the number of children (see Fig. 5-7). The results reveal that, among the eight types of households, the strongest matches to the size  $RHS_t$  are for two-person households without children (2A:  $R^2 = 0.8874$ ) and one-person households without children (1A:  $R^2 = 0.8113$ ). Thus, it can be concluded that the categories have a very strong statistically significant dependency. Households with two adults and one child (2A&1CH:  $R^2 = 0.6490$ ), with two children (2A&2CH:  $R^2 = 0.5633$ ) and with three or more children (2A&3+CH:  $R^2 = 0.6640$ ) are characterized by a moderate dependency. The number of other households is no longer significant and their impact on the size of the rental segment is weakly significant or completely insignificant.

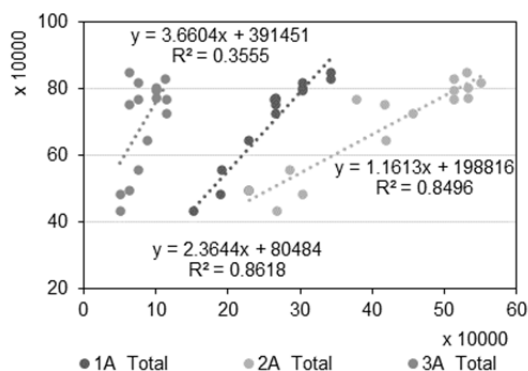


Fig. 4. Correlation between the RHS and the number of households by number of adults, 2007-2021. Source: own study.

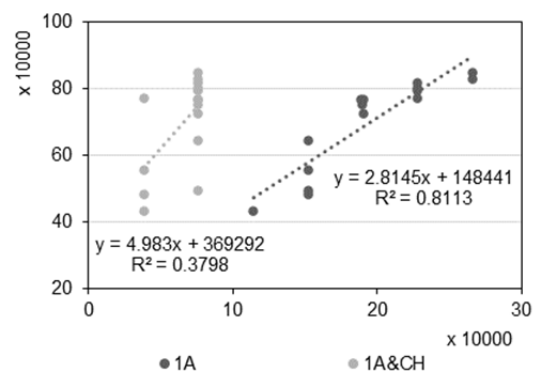


Fig. 5. Correlation between RHS and number of households (1 adult) by number of children, 2007-2021. Source: own study.

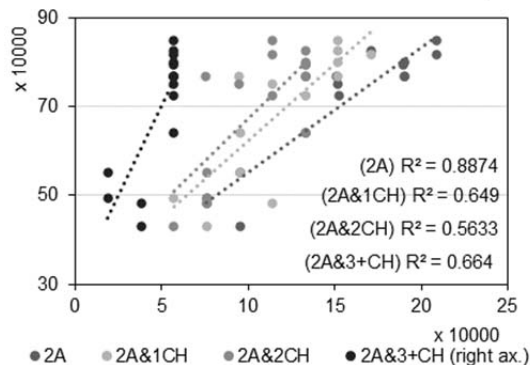


Fig. 6. Correlation between RHS and number of households (2 adults) by number of children, 2007-2021. Source: own study.

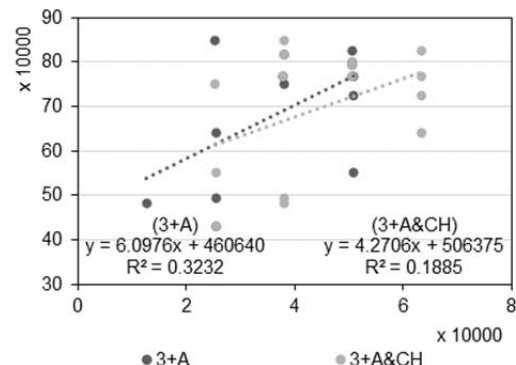
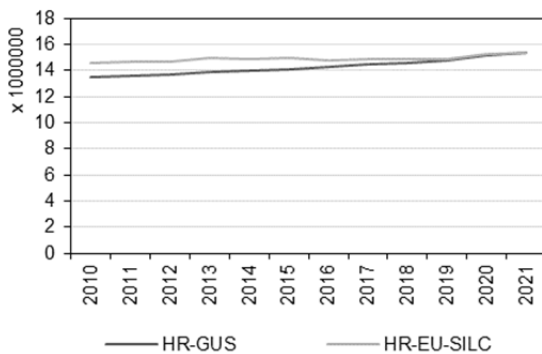


Fig. 7. Correlation between RHS and number of households (3 adults) by number of children, 2007-2021. Source: own study.

In the next step, we conduct an assessment to verify the employed methodology. The  $RHS_t$  value is estimated based on data filtered according to the tenure status criterion, focusing on “market tenants”. However, in this stage, the status selected is “owner”. This means that the disclosed data pertains to property owners. According to the adopted research method, this implies that the final value should reveal the estimated number of owner-occupied dwellings in which household members reside. Therefore, we assume that the previous value of  $RHS_t$  in this case represents the housing resources ( $HR$ ). The estimated value is compared with official statistical data from Statistics Poland. Official statistical data from the subgroup “housing resources” with the category of “communal and housing economy” is utilized. To



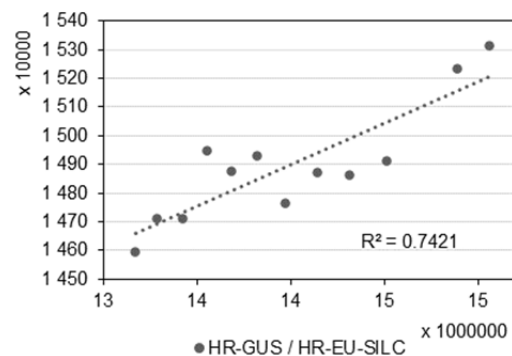
**Fig. 8.** Comparison of the estimated number of housing resources with the data of the Central Statistical Office, 2010-2021. *Source:* own study.

Based on the presented analysis, it can be concluded that the estimated values of the housing resources using the proposed method are consistent with the empirical values. Since the  $HR_{EU,t}$  estimation model using EU-SILC data appears to be accurate, it follows that the  $HR_{EU,t}$  estimates should also present a similar level of accuracy. The only difference between the two estimates lies in the tenure status criterion. Consequently, these observations allow us to conclude that the estimated values of  $HR_{EU,t}$  can be considered as being in alignment with the actual state of the Polish rental segment.

## 5. Discussion

The most important contribution of this research to the real estate market sector lies within the estimation of the size of the rental segment in Poland. Although, this segment has so far been often overlooked in previous real estate market research, its significance remains important both from a social and macroeconomic perspective. Estimating the number of

verify the proposed method, we compare the estimated housing resources based on EU-SILC data ( $HR_{EU,t}$ ) with the number of housing resources according to Statistics Poland ( $HR_{GUS,t}$ ). Comparative analysis reveals a very strong match between the results (see Fig. 8-9). It is found that the estimated values of  $HR_{EU,t}$  for the period 2010-2021 are highly aligned with the values of  $HR_{GUS,t}$ . The average value of the Affinity Index during this period reached 104.4%. This result indicates an above-average alignment of estimated values with empirical values provided by Statistics Poland. Furthermore, the convergence coefficient for the same period equals 0.258, confirming the earlier conclusion regarding the alignment of the results.



**Fig. 9.** Correlation between HR EU-SILC and HR GUS, 2010-2021. *Source:* own study.

rented apartments in Poland holds importance for understanding the preferences of tenants and a necessity to understand and consider the size of this segment. The conducted attempts to verify the results demonstrate the successful achievement of our raised objective.

It should be clearly emphasized that the obtained results are only estimates and possess limitations as well as having their drawbacks. These limitations can be attributed to the statistical mechanisms themselves, since research on the residential rental segment in Poland is hindered by incomplete data. Polish researchers lack the same tools as those possessed by other countries.

The statistical data used from the EU-SILC research was not originally intended to analyze the real estate market, as its primary purpose is to analyze the economic situation of households. However, this does not change the fact that the mode of living (e.g. an owner-occupied apartment versus a rented apartment) makes up an integral element of a

household's situation. Hence, tenure status appears in the research results as a means of differentiating households. However, the biggest challenge encountered was the determination of the quantity of rented apartments from the resulted share. Addressing this challenge was imperative, and tackled by acknowledging the fact that households may opt to rent apartments to fulfill their residential requirements. Consequently, we hypothesize that it would be possible to estimate the number of rented apartments using data from Eurostat's EU-SILC survey.

Ultimately, our hypothesis was confirmed. In this context, the attempt to estimate the size of the rental segment in Poland may be valuable for further research. The applied methodology reveals the estimated size of this segment using publicly available Eurostat data. Moreover, based on the method's verification results in relation to the housing stock, it can be concluded that the method yields results which do well to reflect the reality of the housing rental segment. However, this does not change the fact that the obtained results are only estimates. Nonetheless, we believe that knowing the estimated size of the rental segment in the analyzed period is more valuable than lacking that information. Based on the results of the method's verification, we conclude that the disclosed estimated values should present a result that closely approximates the reality of the rental segment.

## 5. Conclusions

Our findings related to the estimated size of the rental segment in Poland play a significant role in the analytical process. The verification of these findings using the comparative method additionally reveals relationships that are consistent with the opinions of real estate market experts. Despite the evident limitations resulting from the method used and the challenges associated with accessing statistical data, the presented results suggest valuable insights for conducting further research on the rental market. This is especially true for studies where the size of the rental segment will be treated as a dependent variable. Knowing the size of the rental segment, it becomes possible to research the causes and determinants that impact the sector, including its overall size.

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