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Citation for final published version:

Derkacz, Arkadiusz J. and Shahab, Sina 2026. Beyond affordability: a multifaceted index for rental housing availability. *Journal of Urban Planning and Development* 152 (1) 10.1061/JUPDDM.UPENG-6093

Publishers page: <https://doi.org/10.1061/JUPDDM.UPENG-6093>

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Beyond Affordability: A Multifaceted Index for Rental Housing Availability

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Abstract

This paper develops a novel conceptual and methodological framework for understanding rental housing availability, addressing a gap in both academic and policy discourse on housing accessibility. While affordability remains the dominant lens through which rental housing is assessed, such approaches often fail to fully capture the critical influence of supply-side dynamics. Focusing on the Polish rental housing market, this study introduces the Rental Housing Availability Index (RHAI), a multidimensional index that integrates tenant income, rental prices, and supply trends to assess the actual availability of rental housing. The empirical findings demonstrate that rental availability is shaped less by absolute income levels and more by the interplay between changes in supply and rental prices. The RHAI effectively captures market disruptions, including exogenous shocks that trigger sudden contractions in availability despite improvements in affordability. The index's sensitivity to dynamic factors reveals the inadequacy of income-only metrics and offers a more robust tool for ongoing monitoring of rental market conditions. By reframing availability as a function of both affordability and supply, the study contributes a more precise analytical lens for diagnosing constraints in rental housing access.

Keywords: Housing Availability, Housing Affordability, Rental Housing, Housing Policy, Housing Supply.

Introduction

Across many countries, rental housing markets are under mounting pressure (O'Toole, 2023; Aveline-Dubach, 2020; Subası & Turk, 2024). Rising demand, demographic shifts, urbanisation, and evolving labour market dynamics have contributed to an increasing reliance on rental accommodation (Kim, 1995; James, 2008). In parallel, the cost and availability of rental housing have emerged as central concerns for policymakers and urban planners seeking to address housing inequality and promote inclusive urban development (Chen et al., 2024; Guo et al., 2021; Gingell & Shahab, 2021). Yet, policy and academic discussions about rental housing accessibility often remain narrowly focused on affordability, typically assessed through income-to-rent ratios (Ho & Chiu, 2002; Cai & Lu, 2015). While this perspective is

valuable, it tends to overlook the decisive role of housing supply, market dynamics, and regional variation in shaping access to rental housing.

This paper addresses this gap by focusing on the critical issue of rental housing availability in the context of Poland. The primary research question centres on the accessibility of rental units for Polish households opting for this form of tenure. The significance of the rental market in Poland's housing system has grown markedly, attracting increasing attention from academic researchers, market analysts, and governmental bodies alike (Gdakowicz et al., 2023; Hebdzynski, 2023; Papież, 2020; Tomal & Helbich, 2022; Trojanek, 2023; Trojanek & Gluszak, 2022). This growing interest is rooted in the growing challenges of meeting housing needs within the current economic context. While a strong cultural preference for homeownership continues to shape housing aspirations (Bryx et al., 2021), a large share of the population is increasingly compelled by financial necessity to seek rental accommodation (Derkacz & Gajda, 2023). As a result, the rental housing sector is gaining prominence within broader socio-economic, and arguably, political discourse.

Despite this growing significance, the rental market remains analytically and methodologically underdeveloped. While the availability of homes for purchase has been subject to extensive analysis, rental housing remains comparatively neglected (An et al., 2022; Gilbert, 2016; Hagen & Hansen, 2010; Halket & di Custozza, 2015). The lack of systematic understanding of the availability of rental units, defined by their quantity, spatial distribution, and suitability for households across income brackets, constitutes a significant barrier to effective housing policymaking in Poland.

This paper seeks to develop a more comprehensive conceptual and methodological framework for understanding rental housing availability. It introduces the Rental Housing Availability Index (RHAI), a novel metric that integrates income-based affordability with supply-side dynamics. While developed in response to the Polish context, the RHAI is proposed as a potentially transferable tool for urban planning and policy analysis in other national and regional settings, particularly where affordability-based approaches are insufficient to explain constraints on access.

This study is driven by the imperative to move beyond standard metrics based solely on average incomes and median rental prices. Although household budget constraints play a vital role in shaping housing decisions (Anderson et al., 2021; Dieleman & Everaers, 1994; Schulz et al., 2009), they are only one part of a more complex picture. This study argues that supply-side factors are equally, if not more, critical in determining rental housing availability. Even for households with sufficient financial means, finding suitable accommodation is not guaranteed. Characteristics such as location, size, condition, and amenities all significantly mediate the availability of viable rental options (Green et al., 2005; Hwang & Sampson, 2014; Suzuki & Shimizu, 2023), while individual tenant preferences further narrow effective supply (Ezennia & Hoskara, 2021; Mckee et al., 2017; Waldinger, 2021). On this basis, the study posits a key hypothesis: while income factors influence rental availability, the role of supply-side dynamics is both substantial and under-acknowledged. This necessitates a multidimensional index that accounts for both affordability and supply. The construction of such an index aims to offer a more accurate and policy-relevant understanding of the true accessibility of rental housing.

Accordingly, the RHAI is proposed as a metric that incorporates both income conditions and housing supply trends. Empirical analysis demonstrates its validity in capturing market fluctuations and aligning with expert assessments of availability. The index enables precise monitoring of changes over time and offers strong potential for comparative research across different Polish regions. By addressing a persistent knowledge gap, the RHAI equips researchers and decision-makers with a more sophisticated tool to interpret and respond to developments in the rental housing market. The paper is structured as follows: it begins by reviewing existing approaches to rental housing availability and affordability, then introduces the conceptual foundations and formulation of the RHAI. The empirical section demonstrates the index's application and validity, while the discussion explores its relevance for housing policy and outlines future research directions, including the relationship between availability and rental price formation.

Rental Housing Availability and Affordability

Renters, in contrast to homeowners, tend to experience higher rates of residential mobility, face greater housing instability, and encounter unique constraints in their residential mobility choices. Additionally, renters in most metropolitan areas are often confronted with a housing market characterised by demand that significantly exceeds supply, coupled with escalating costs (DeLuca et al. 2013; Desmond and Shollenberger 2015; Friedman et al. 2013; Pilkauskas and Micheltore 2019; Sadler and Shahab 2021). The critical issue of housing availability holds immense significance for both the economic landscape and the real estate industry. However, research in this domain remains limited, particularly within the context of the Polish rental market. A review of existing scholarly literature reveals a prevailing focus on analysing rental housing availability solely through the lens of affordability (Revington & Townsend, 2016; Gilbert, 2016; Rosen et al., 2022). While availability can be considered from the viewpoints of buyers, renters, and property owners, existing research within the rental sector tends to narrowly focus on tenant income relative to rental costs (Zakrzewska-Półtorak & Pluta, 2023). In this context, availability refers to the number of square meters of housing available for rent at the market price for an average wage (Szelągowska, 2021). Moreover, while some housing affordability indices, such as the Dynamic Housing Affordability Index (DHAI), offer valuable insights into the user cost of homeownership by incorporating factors like mortgage interest, taxes, and expected price inflation (Bourassa & Haurin 2016), such approaches are less applicable to rental markets, where structural supply-side constraints and local market dynamics play a more immediate role in shaping affordability and access.

However, it should be emphasised that affordability itself must be analysed in relation to supply-side constraints (Yoshida & Kato, 2022). In addition to the mismatch between supply and demand for rental housing and household incomes, affordability is also determined by housing investment costs, financing capabilities, and the country's economic situation (Liu & Ong, 2021). A growing body of research has explored the impact of supply-side constraints on housing affordability, employing both direct and indirect measures. Direct approaches typically involve adjusting rents for quality to assess real cost burdens, while indirect methods examine proxies such as dwelling size, land plot dimensions, and patterns of household location choices (Molloy et al., 2022). In parallel, studies have investigated the relationship between housing price dynamics and supply elasticity, i.e., the degree to which housing supply responds to

changes in market prices (Molloy, 2020). However, such studies have typically been conducted in the context of housing sales rather than the rental sector.

There are numerous definitions of housing affordability in the literature. At its core, housing affordability hinges on the relationship between household income and relative housing costs. In the rental market, this translates to rent (Stone, 1994). This places strong emphasis on purchasing power, both for purchasing and renting housing. Thus, there is a focus on budgetary constraints. Many researchers define housing affordability using the ratio of housing costs to household income, often setting a threshold (e.g., 30%) above which housing is considered unaffordable (Burke & Ralston, 2004; Freeman et al., 1997; Robinson et al., 2006; Williams, 1990). An alternative definition focuses on residual income, which considers the income left after paying for housing costs (Hancock, 1993; Stone, 2006; Padley et al., 2018). This approach argues that affordability should be based on the ability to cover other essential expenses after housing costs are paid.

However, affordability only represents one facet of a complex issue. Housing availability, on the other hand, encompasses a broader spectrum, including the actual number of units within a specific market segment (rental or ownership). Housing availability is often defined by the material adequacy, stability, and security of tenure (Aidala et al., 2016; Adabre et al., 2021). This includes considerations of whether housing is physically adequate, stable over time, and secure from eviction or displacement. Definitions of housing availability also consider broader structural and contextual factors, such as economic, social, and policy drivers that influence housing markets. These factors include market transparency, supply-side limitations, and rent control mechanisms (Palma & Rouwendal, 1996; Hansson & Lundgren, 2019).

In the context of the Polish rental market, a seemingly paradoxical situation emerges. While rental housing may appear affordable based on price (Derkacz & Gajda, 2022), insufficient supply or a mismatch between supply and tenant expectations can significantly limit actual availability. This observation underscores the need for research that develops a comprehensive indicator for rental housing availability. This indicator would optimally demonstrate the actual availability of housing, from both an affordability and supply perspective. Tenant expectations regarding housing size, amenities, or location can significantly impact the perceived availability of even affordable units. By incorporating both affordability and supply factors, this new indicator aims to provide a more holistic understanding of the Polish rental market's complexities.

Comparative evidence from countries with more mature rental markets highlights the role of supply-side measures in shaping housing affordability and availability. For example, Germany's rental housing system, featuring tenant protections, regulated rent increases, and a significant presence of institutional investors, illustrates how regulatory and market coordination can support affordability (Kadelke, 2023; Hartung, 2022; Derkacz & Shahab, 2020; Shahab et al., 2021). Likewise, in Sweden and Denmark, the presence of large-scale social and cooperative rental sectors has been associated with greater tenure security and housing quality, as well as a degree of insulation from market volatility (Blackwell & Bengtsson, 2021; Andersson & Turner, 2014; Engberg, 2000). These cases indicate that sustained policy frameworks and a mix of market and non-market provision can help balance supply and demand. In comparison, the Polish rental sector is characterised by a more limited

institutional infrastructure and less extensive regulatory and financial support mechanisms, which may influence the effectiveness of supply-side responses.

Rental Housing Availability Index: Towards Developing a Multifaceted Index

Building on the conceptual argument that both affordability and supply-side dynamics are essential to understanding rental housing availability, this section presents the construction of the Rental Housing Availability Index (RHAI). The index is designed to integrate demand- and supply-side considerations into a single metric, enabling more nuanced assessments of rental market accessibility. The formulation of the RHAI begins with the income-to-rent ratio, a widely used indicator of affordability, before incorporating indicators of supply volume and market responsiveness.

Naturally, the primary factor at this stage will be the level of household income (HI). In this stage of analysis, the level of rental housing availability is determined by the ratio of income to rent (RP). The initial stage of the proposed RHAI prioritises the income aspect. This aligns with the demand side of the equation, where the level of rental housing availability is primarily determined by household income capabilities (HI). Here, the ratio of income to rent (RP) serves as the key metric. Higher income levels, relative to rental costs, theoretically translate into greater rental housing availability for a household. This can be expressed as:

$$RHAI'_t = \frac{HI_t}{RP_t} \quad (1)$$

where HI_t represents household incomes and RP_t denotes the average monthly rent payment. The subscript t denotes time. This formula reveals the income capability for renting housing at real rental prices. Thus, the value of $\alpha_t = 1 - RP_t/HI_t$ can be considered an indicator of average disposable incomes after rental expenses. It is also important to emphasize that the rent payment at this stage will be treated as an offered rent rather than a transactional one.

The availability of rental housing in the economy is also determined by supply-side factors. Therefore, the proposed method introduces the quantity of rental housing supply (RS) as an additional factor. It is defined as the number of rental listings in a given timeframe. The RHAI incorporates an index of supply dynamics, calculated on a month-to-month basis using the base variable formula ($rs_t = RS_t/RS_{t-1} \times 100$). This approach ensures that factors influencing availability and/or its changes are the dynamics of supply changes rather than their nominal values. It is assumed that the rental housing supply is influenced to some extent by the level of rental prices (RP). Similarly, an index of price dynamics is utilised, expressed as $rp_t = RP_t/RP_{t-1} \times 100$. This implies that changes in rental prices may affect changes in supply. Landlords may adjust their rental offerings based on anticipated revenues, leading to potential changes in supply. Increased housing supply can lead to lower rental prices due to competition among landlords. Conversely, rising rental prices may incentivize property owners to enter the rental market, thus increasing supply. Based on this, the supply-rent dynamic index (SRDI) is defined as:

$$SRDI_t = \frac{rs_t}{rp_t} \quad (2)$$

It indicates the relationship between the dynamics of rental housing supply changes and the dynamics of changes in average rental prices. The levels of the SRDI index can be interpreted as follows:

- if $SRDI = 1$ – balanced price dynamics of housing supply;
- if $0 \leq SRDI < 1$ – delayed supply dynamics relative to rp_t ;
- if $SRDI < 0$ – very delayed supply dynamics relative to rp_t ;
- if $SRDI > 1$ – leading supply dynamics relative to rp_t .

Delayed supply dynamics reveal a situation where the rate of change in housing supply in the economy is slower than the changes occurring in rental prices. This also means that prices are increasing faster than changes in rental housing supply. Leading supply dynamics reveal the opposite situation. Meanwhile, balanced price dynamics of housing supply occur when $rp_t = rs_t$. This makes the SRDI index a specific rent elasticity of housing supply in the rental market.

At this point, it is possible to present the final form of the RHAI.

$$RHAI_t = \frac{HI_t}{RP_t} \times rs_t \times \frac{1}{rp_t} \quad (3)$$

This formulation underscores the combined influence of three critical aspects on rental housing availability: (1) the income capabilities of households (demand-side), (2) the dynamics of rental housing supply, and (3) the fluctuations in rental prices. Consequently, the RHAI would theoretically increase in value under two conditions: rising household income levels and a supply of rental units growing faster than rental prices. Conversely, a faster increase in rental prices compared to supply growth would lead to a decrease in the RHAI, signifying a decline in rental housing availability for households. Equation (3) can be transformed into another form using the formulas of the dynamics index rp_t :

$$RHAI_t = HI_t \times rs_t \times \frac{RP_{t-1}}{RP_t^2} \times 100 \quad (3')$$

This form of the index clearly emphasises the rent aspect. It appears that the level of rents in period t significantly influences the value of the $RHAI_t$ index more strongly than in period $t - 1$. The value of RP_t is raised to the power of two. Additionally, it is evident that the value of the $RHAI_t$ index is directly proportional to the level of rents in period $t - 1$ and inversely proportional to those in period t . This means that an increase in rents in period t compared to period $t - 1$ will exponentially decrease the level of rental housing availability. This relationship can be defined as the rental housing availability rent index $\rho_t = \frac{RP_{t-1}}{RP_t^2} \times 100$. Therefore:

$$RHAI_t = HI_t \times rs_t \times \rho_t \quad (3'')$$

An increase in its value may indicate an improvement in market conditions (supply-side perspective) regarding the dynamics of changes in rent levels. This directly contributes to an improvement in rental housing availability. Therefore, it can be said that the ρ index affects the sentiments of potential tenants regarding market rent levels.

The interpretation of the RHAI should be as follows: if $RHAI_t = 1$ point, it would mean that with balanced price dynamics of housing supply ($SRDI = 1$), the rent has become equal to household incomes. In practice, this may indicate that the income of such a household does not allow for renting a property due to basic consumption needs. For theoretical interpretation purposes, let's assume that the rental price level accepted by the household due to the level of essential consumption cannot exceed $HI \times 0.5$. This would mean that only when $RHAI_t = 2$ points renting will be available for such a household under certain market conditions. Furthermore, the higher its value, the higher the rental housing availability under specific market conditions.

The research process yielded an important refinement to the initial assumptions regarding rental housing availability. While the initial approach focused on static income levels and rental prices in a given month, the concept of availability was deemed more accurately reflected by considering their dynamics, i.e., their changes. This realisation necessitated adjustments to the original formulation of the RHAI. The refined equation (1) includes the values $hi_t = HI_t/HI_{t-1} \times 100$ and rp_t , which was defined earlier. Consequently, the final form of the RHAI should be written as:

$$RHAI_t^D = \frac{hi_t}{rp_t} \times rs_t \times \frac{1}{rp_t} = hi_t \times rs_t \times \frac{1}{rp_t^2} \quad (4)$$

We will refer to this version of the index as the dynamic index, to distinguish it from the form in equation (3). This change does not significantly affect the interpretation of the index. Only the income aspect gains dynamic significance. This form of the RHAI has additional research value. It turns out that many available datasets provide only indices of changes in the variables used here. Utilising the dynamic version of the RHAI allows for a new interpretation. It should be noted that the results $HRAI_t^D$ will always oscillate around the value of 1. In this context, the following interpretational rules can be introduced. Depending on the obtained results, we have:

- $RHAI_t^D = 1$ point – balanced availability;
- $RHAI_t^D > 1$ point – increased availability; and
- $RHAI_t^D < 1$ point – decreased availability.

Balanced rental availability will indicate a situation where there is a certain equilibrium between the dynamics of household income changes and the supply of housing in relation to the dynamics of rental price changes. An increase in rental availability will indicate that the values from the numerator have increased faster than rents. Conversely, a decrease in housing availability will reveal a situation in which the rental housing market is unfavourable for households seeking rental accommodation.

Empirical Research: Application of the Rental Housing Availability Index

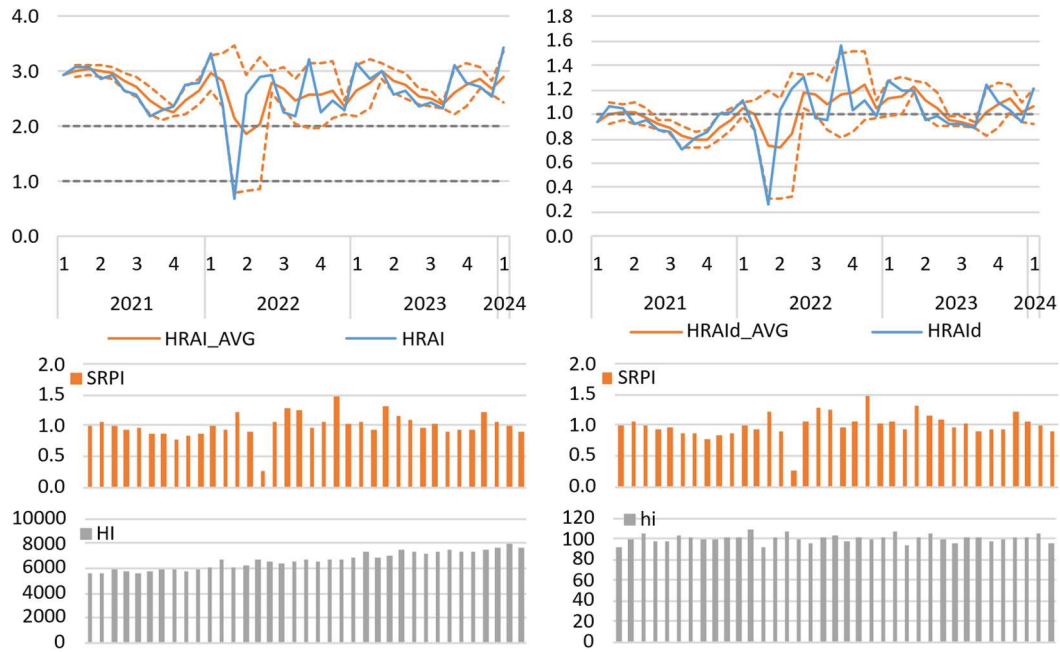
The proposed method for estimating rental housing availability in Poland was verified based on available data from two main sources. The first is the online platform Otodom.pl, which is one of the largest platforms where Polish residents post available rental housing units, among other things. Based on this dataset, this study has determined:

- RP_t – average monthly rents for rental apartments in Poland, and
- RS_t – monthly number of rental offers (number of offers at the end of each month).

The second source of statistical data is Statistics Poland. From these databases, this paper utilised information regarding the average gross monthly income in the enterprise, which we assigned to the variable HI_t .

The RHAI was simultaneously estimated using formulas (3) and (4) on a monthly basis. This allows for comparison of results as well as their interpretation methods. Figure 1 presents the estimated $RHAI$ and $RHAI^D$ as well as their average values over 3 months (AVG). It was found that during the period from January 2021 to January 2024, the average value of the RHAI was 2.18 points, with a median of 2.22 points. This result indicates that the average rental availability in Poland is sufficient given the RHAI meets the condition $RHAI > 2$ points. However, it should be emphasised that the coefficient of variation during this period was $v = 16.3\%$. This indicates relatively low variability, although statistically significant. An analysis of the RHAI's monthly values throughout the observed period reveals periods where the index falls below the threshold of 2.0 points. These periods can be interpreted as signifying insufficient rental housing availability.

Figure 1. Comparison of the RHAI (left) with the dynamic RHAI^D (right) against their SRDI and HI/hi indicators.



Source: own study, OLX Group, Statistic Poland

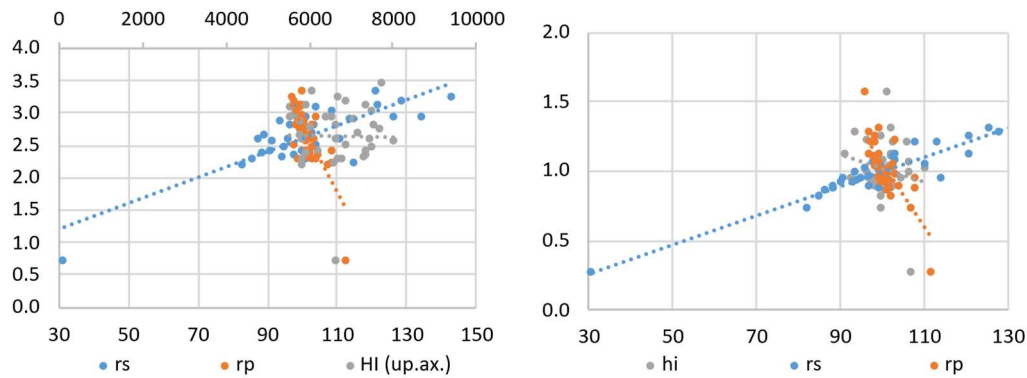
The RHAI's sensitivity to dynamic market changes is further exemplified by its performance in March 2022. During this period, the index plummeted to a value of 0.69, indicating a severe decline in rental availability. This coincided with a significant influx of refugees from Ukraine. Many landlords used their rental properties to support the refugees, which resulted in a decreased availability of rental units in Poland. This situation serves as a real-world illustration of RHAI's ability to capture disruptions in the rental market, particularly on the supply side. It's worth noting that a purely income-based analysis of availability in March 2022 would have yielded misleading results. Average monthly wages increased

compared to the previous month, suggesting (incorrectly) an increase in availability based on affordability. In contrast, the supply-rent dynamics index (SRDI) component of the RHAI effectively captured the significant supply shock and corresponding rental price hikes, reflecting the true dynamics of the market. The March 2022 case, while arising from a tragic event, provides a valuable opportunity to validate the RHAI's effectiveness in measuring rental housing availability. It demonstrates the index's ability to move beyond static income considerations and incorporate the crucial influence of supply-side factors.

At this juncture, it is imperative to address the dynamic rental housing availability index $RHAI^D$ which is presented in the right side of Figure 1. Analysing the results obtained during the period from January 2021 to January 2024, it was observed that the median reached 1.00 point, the mean was 1.01 points, the standard deviation was 0.18 points, and the coefficient of variation was 17.7%. A comparison between the dynamic and static versions of the RHAI revealed a strong convergence, with a Pearson correlation coefficient of 0.93 and an R-squared value of 0.87. Notably, the dynamic index exhibited greater volatility, although the overall trends in availability mirrored those of the static version. This means that the significance of the two versions of the rental housing availability index is very similar. However, it is noteworthy to consider the manner in which the obtained results are interpreted. It turned out that the theoretical methodological assumptions were confirmed. For the dynamic index, the critical value was $HRAI^D = 1$ point. This value indicates balanced rental housing availability. It was found that this defined critical value for $HRAI^D$ coincides with the critical value of $HRAI = 2$. This allows for the utilisation of either of the two options of the rental housing availability index in the analysis of the rental market. However, it is essential to remember the interpretational rules.

In the subsequent stage of presenting the research results, the paper focuses on the main determinants that influence the outcomes of the $RHAI$ and $RHAI^D$ (see Figure 2). The analysis revealed a relatively weak association between household income levels and the values of both the static and dynamic versions of the RHAI. The Pearson correlation coefficient for the $RHAI$ was -0.02, and for the $HRAI^D$ index was 0.15. In both cases, it can be concluded that there is no significant correlation. Completely different relationships were observed in relation to the supply change index (rs). In this case, the Pearson coefficient was 0.90 for the $RHAI$ and 0.95 for the $RHAI^D$ index. This means that a dynamic increase in housing supply (number of rental offers) strongly influences the increase in rental availability. Another relationship of the availability index was observed in relation to the dynamics of rental price changes (rp). In relation to the $RHAI$, the Pearson correlation coefficient was -0.93, and for the $RHAI^D$ was -0.89. In this case as well, we observe a very strong correlation, albeit inversely proportional. This implies that a dynamic increase in rental prices results in a decrease in rental housing availability.

Figure 2. Correlations of the RHAI (left) and the dynamic RHAI^D (right) with respect to the main determinants.



Source: own study, OLX Group, Statistic Poland

A closer examination of these relationships yields another key insight. The dynamic changes in the three factors (income, supply, and rental prices) exert a stronger influence on the RHAI (both static and dynamic versions) compared to their absolute values. Table 1 provides a comparison of the Pearson correlation coefficients to illustrate this point. This finding suggests that the specific level of supply or rental price in a given month may be less important than whether these values are increasing or decreasing. The dynamics of change within these variables appear to have a significantly greater impact on rental housing availability.

Table 1. The Pearson correlation coefficients of the RHAI with independent variables.

	HI	hi	RS	rs	RP	rp
HRAI	-0.02	-0.41	0.35	0.90	-0.12	-0.93
HRAI^D	0.15	-0.26	0.10	0.95	0.13	-0.89

Source: own study

This emphasis on dynamic changes aligns with real-world decision-making processes within the rental market. Potential tenants are likely more concerned with whether the availability of suitable housing options, rental prices, or their own income levels are increasing or decreasing, rather than their absolute values at a given point in time. Positive changes in any of these factors can incentivize renters to make decisions, whereas stagnant values may not. From this perspective, the dynamic version of RHAI offers a potentially more relevant measure compared to the static RHAI. Thus, the findings suggest that the level of rental housing availability is primarily influenced by the dynamics of supply and rental prices, rather than their static values. This underscores the importance of considering changes in the socio-economic environment, as these fluctuations hold greater significance for renters' decision-making compared to the current state of the market.

Discussion and Conclusion

The proposed Rental Housing Availability Index (RHAI) addresses a critical knowledge gap in understanding rental housing availability within the Polish context. By incorporating not only income affordability but also supply and rental price dynamics, the RHAI offers a more comprehensive perspective on this multifaceted issue. It's important to acknowledge that access to extensive and high-quality data from the online platform Otodom.pl was instrumental in developing this index. Without such granular data, the RHAI would likely remain a theoretical

construct. The research underscores the crucial role of supply dynamics in influencing rental housing availability in Poland. This is strongly supported by the observed dependencies between the RHAI and its key determinants. This finding aligns with existing scholarship, which emphasises the importance of increasing rental housing availability to address basic needs and foster socio-economic development in Poland (Dziworska, 2017). Additionally, adequate rental availability has been linked to overcoming social mobility barriers and furthering overall economic growth (Zaniewska & Thiel, 2008). Given these considerations, the proposed RHAI methodology holds significant promise for enriching future research endeavours focused on the rental housing market in Poland and beyond.

While the RHAI offers a valuable framework for assessing rental housing availability, it's important to acknowledge inherent limitations arising from its underlying assumptions. One key limitation is the use of national-level averages for rental prices and supply data. This approach provides insights into the general availability of rental housing across Poland, but has limitations to capture the significant geographic variations that likely exist. For instance, relying on a single availability index would be insufficient to accurately represent the rental market realities in major cities like Warsaw or Łódź compared to smaller towns like Kalisz or Krasnystaw. However, it's important to mention that this article focuses on introducing and discussing the RHAI methodology. Future research will endeavour to refine the index by estimating availability levels within specific local markets.

Another limitation worth mentioning is the examination of rental availability for the general population. In this case as well, it should be assumed that rental availability will vary for households with different income levels. This study adopted the average wage in Poland. Based on research on tenant preferences (Derkacz & Gajda, 2023), it can also be presumed that the availability of rental housing will differ due to tenants' expectations in this regard. This implies that rental availability should be analysed from the perspective of specific characteristics of residential properties. It should be noted, however, that the limitations of the presented research stem from its main objective. The revealed limitations should be regarded as opportunities for further research. They should demonstrate potential differences in rental housing availability from the perspective of different levels of differentiation of independent variables, which are located on the right side of the equation. Extending the applicability of the RHAI beyond the Polish context represents a promising avenue for future research. This could involve testing and potentially adapting the index to assess rental housing availability in other countries. Ultimately, such efforts could contribute to the development of a universal framework for measuring rental availability across diverse market settings.

In conclusion, this research underscores the multifaceted nature of rental housing availability. While income affordability remains a crucial factor, the dynamics of rental prices and supply play an equally, if not more, significant role. The RHAI emerges as a valuable tool for dissecting the real estate market landscape in this regard. By incorporating income changes alongside supply and rental price dynamics, the RHAI facilitates a more nuanced understanding of availability across different income groups and potentially in relation to tenant preferences. To further enhance the policy relevance of the RHAI, future research could explore its interactions with specific housing policy instruments, such as rent controls or landlord-targeted tax incentives. Scenario-based modelling of these policy instruments would provide helpful insights into their potential impact on supply dynamics, landlord behaviour, and overall rental housing availability. Additionally, applying the RHAI to contrasting regional contexts, such as

between major metropolitan areas like Warsaw and smaller towns, would help assess its robustness and sensitivity across diverse market conditions, while also shedding light on spatial disparities in rental housing access. Looking forward, this methodology holds promise not only as a foundation for further scholarly enquiry but also as a practical asset for policymakers aiming to effectively support the housing needs of tenants.

Data Availability Statement

Some or all data, models, or code that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgments

The authors gratefully acknowledge the OLX Group for providing access to their extensive databases containing residential real estate market data. This collaboration and the richness of the data were instrumental in the development and verification of the Rental Housing Availability Index (RHAI). Without this crucial support, relying solely on limited market information could have compromised the robustness of the RHAI's validation process.

Disclosure Statement

The authors report there are no competing interests to declare.

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