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# HOUSING COST STRESS OF MORTGAGERS AND TENANTS IN POLAND[1]

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**Abstract**

The economic problems of mortgage takers, especially in light of the global financial crisis, is a very important issue, both from the point of view of housing policy and the stability of the banking sector. The analysis of the situation of mortgagors is usually limited to determining the percentage of mortgages in default. We compared the revealed mortgage repayment problems among Poles (arrears) with the unrevealed ones (such as high housing cost burden, inability to bear unexpected expenses), which we defined as housing cost stress. Next, we compared these problems with those of tenants at market rates. We found that, although we observe only a small percentage of mortgagors who are in arrears with their housing costs in Poland (about 3%), a large proportion of borrowers (about half of them) are in a difficult financial situation. At the same time, we noticed that their situation is still better than that of market rent tenants, because only one in five renters did not experience problems with covering housing costs. Among tenants, singles were much more likely to suffer from housing cost stress.

Key words: *mortgage, housing cost, ownership, tenants, housing cost overburden*.

JEL Classification: *G21, G51, R21*.

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## 1. Introduction

The analysis of the situation of mortgagers often concerns only those who are unable to meet their mortgage payments. However, Waldron & Redmond (2017), as well as Waldron (2016), have shown that, in Ireland, there is also a large group of households who regularly pay their installments, but whose financial situation is very difficult (reflected in Waldron & Redmond publication's meaningful title: "We're just existing, not living!"). This group may be seen as being at risk of losing their financial liquidity and, as a consequence, becoming insolvent. Additionally, it must be remembered that problems connected with paying off mortgage loans lead to negative consequences, not only to the loan taker but also to the overall economy, and that the identification of the scale of this problem as

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well as the characteristics of this group is important both from the perspective of the stability of the financial sector as well as for the creation of effective housing and social policies.

In our opinion, the assessment of the scale of the problems observed by Waldron & Redmond (2017) and Waldron (2016) is especially interesting with respect to Poland. Nowadays, young people in Poland are, at least to some extent - seeing as how long-run renting remains costly and does not provide a sense of security, "forced" to buy a home even when this form of accommodation is not the most suitable for them. Between 2006 and 2014, for example, renting a flat in Warsaw was as expensive as buying one with a mortgage and, since 2015, due to a fall in interest rates, renting may have even exceeded the costs of homeownership (see NBP, 2020, Figure 4.15). A declarative study also shows that Polish people perceive homeownership as a cheaper way of satisfying their housing needs than renting (Rubaszek & Rubio, 2020). This in turn inclines even people with lower incomes to make risky decisions, such as getting home loans that are at the border of their credit capabilities just to gain homeownership.

Moreover, Poland still lacks a professional rental market. The market has started to develop on a significant scale after 2015 r. after the easing of strict tenant protection regulations and interest rate cuts by the central bank (Łaszek et al., 2021). In 2018, only 4.5% of Polish households (Eurostat) lived in rented properties and this form of accommodation was mainly used by people who were young, unmarried, and did not have children (Matel, 2021b). Rubaszek (2019) indicates that this is caused, among others, housing policies that promote homeownership, the inefficiency of institutions, and lack of professional renting services as well as cultural attitudes that shape the opinions of individuals regarding the role of ownership. However, Matel & Olszewski (2021) find some serious problems that impede the free choice of accommodation in Poland. First, a reasonable private rental market can be found only in a few of the largest cities. Rental housing is hardly available to people living in rural and less urbanized areas. Moreover, those people who migrate to large cities for jobs or education from rural areas do not have the option to live with their parents. As a result, homeownership is sometimes the only possible form a long-term accommodation, which may incline households to take out mortgages even at the upper limit of their creditworthiness. In the event of problems with making payments, the owner-borrower implements various strategies for coping with this situation (Waldron & Redmond, 2017). We therefore suspect that, aside from obvious cases of people who cannot make their mortgage payments in Poland, there is also a large group of borrowers who make the payments on time but are on the edge of becoming insolvent. These problems were defined by Waldron & Redmond (2017) and Waldron (2016) as mortgage stress. In our studies, we aim to create an indicator that is as similar as possible to that used by the authors of the works specified above, but that will also allow us to compare the financial situations of mortgagers and renters. According to this, our first research hypothesis is:

*H1: In Poland, despite the small scale of mortgage arrears, more than half of mortgagers suffer from housing cost stress.*

An earlier study (Matel, 2021a) has shown that young adult tenants and homeowners in Poland do not differ in terms of income levels. Renting in Poland is expensive and, therefore, is treated as a temporary form of accommodation (see: Rubaszek & Czerniak, 2017; Rubaszek & Rubaszek, 2021). We assume that a tenant who loses the ability to make his rent payments can change his living arrangements (for example moves in with family, if possible) with greater ease than someone who is paying off a mortgage. Our second research hypothesis is:

*H2: The proportion of people experiencing housing cost stress is lower among market renters than among mortgagers.*

Our study is in line with literature about the general economic situation of Polish households, which was analyzed by Czapiński & Panek (2014). The analysis of the financial burden of indebted households was analyzed by Zajączkowski & Żochowski (2007), whereas estimates of household wealth, including housing, were assessed by the NBP (2015) on the basis of a dedicated survey. Although these analyses are certainly valuable, they have not been updated. We propose an analysis that relies on already collected data by Statistics Poland.

## 2. Literature review

In many countries, but especially in the US in the early 2000s, housing policy and economic policy were oriented towards ownership, to a large extend financed with mortgages. For a considerable time, relatively cheap mortgages allowed people to improve their living conditions. Many households

bought new housing units or improved old ones, new jobs were created and the economy was booming. Iacoviello (2004, 2010) found a strong relationship between the housing market and the economy in the US. Housing wealth exceeds the value of the GDP and housing wealth and aggregate consumption move together. While investment in housing has only a small direct share in GDP, its growth has a large impact on aggregate GDP and employment. And we have seen that this relationship also holds true when the housing market deteriorates. Excessive indebtedness of households in the global economy led to the global financial crisis in 2007. Researchers and policymakers started to analyze why such a situation emerged and what should be done to prevent another one. The reasons behind the outbreak of the crisis were more complex (see Brunnermeier, 2009) but here we want to focus on the fundamental factor – excessive mortgages and the housing boom. In some countries, like the US, people could obtain teaser loans, that is mortgages that were very cheap in the initial few years, but turned out to be unaffordable in the long run for the households who bought such products. In Ireland, mortgages were given out by banks very freely, and households took as high of a mortgage as possible, which led to a housing boom (Central Bank of Ireland, 2010 a,b). Poland and Hungary saw a huge increase in foreign currency mortgages, which also led to a housing boom. After the outbreak of the financial crisis, the foreign exchange rate went up and the value of the mortgage expressed in local currencyexceeded the value of the financed housing unit. After the financial crisis, many households were left with significant financial problems and had to cut down on consumption.

The common tool in the analysis of households' problems with the repayment of mortgages is the rate of non-performing loans. However, this indicator measures only those who do not pay the installments for at least three months and is not able to tell how many households are close to insolvency. The usual indicator does not consider a situation in which a share of households cut down on consumption in order to serve the mortgage and decrease their welfare to a minimum (Forrest, 2011). In such a situation, even small increases of the interest rate or temporal unemployment makes those households insolvent, because they cannot cut consumption any further and they do not have any other liquid assets. It is crucial to gain knowledge on this matter and to quantify the share of households with such problems, as they may become poor and their wellbeing will have a direct, negative effect on gross consumption and, in consequence, on economic growth during the recovery phase (see also Murphy & Scott; 2014).

Housing markets and financial markets are prone to shocks, and market participants have now a higher perception of risk (Scanlon et al., 2011; Scanlon & Whitehead 2011). Dynan & Kohn (2007) state that high indebtedness, especially for housing purchase reasons, makes households' consumption very prone to interest rate changes. According to AOKI et al. (2004), Bajari et al. (2013) and Olszewski et al. (2016), interest rates significantly impact house purchase decisions. Further on,there is still a significant lack of housing in Central and Eastern European countries (see Ciarlone, 2015 and NBP, 2016) and the rental market does not work well (Łaszek et al., 2021), making renting more costly than owning, at least in the short run. Rubaszek & Czerniak (2017) showed, with the help of a survey, that households in Poland prefer owning over renting because of the social status and the safety an owned housing unit offers. Also, behavioural aspects described by Salzman & Zwinkels (2013) impact decisions house purchase. And, as Faber and O'Guinn (1988) explain, consumers can abuse mortgages. In sum, most social and economic attitudes and arguments enhance the desirability of buying housing with a mortgage. But is this a wise decision and will all mortgagers be able to pay back the debt?

Research indicates that mortgage borrowers are generally willing to undertake various types of coping strategies before falling into arrears. As a result, the scale of disclosed mortgage repayment problems is much lower than the actual scale of their financial problems.For example, research by S. Nettleton & R. Burrows (2001) – basing on direct interviews - indicated that mortgagers who experienced repayment problems were those who had experienced significant life problems, such as job loss, ill health, additional caring responsibilities or reduced income. Nevertheless, their attitude towards repayment problems was not passive. Individuals undertook different coping strategies to save their homes. H. Christie (2000) showed that people who are having difficulty paying their mortgage usually tried to retain their status as home owners as long as possible, by various means, including seeking extra work, juggling household finances and paring expenditure down to frighteningly low levels. Similarly, I. Sabaté Muriel (2018) showed that many Spanish households

struggle to keep up with repayments before going into arrears. The author also analyzed factors influencing the ability to afford repayments, like the relationship of mortgage burden with income, and the ability to draw on other sources of income, including the availability of material aid and non-economic resources, such as information or social connections.

The need to monitor the overall financial situation of mortgagers, including their financial liquidity, was highlighted by P O'Neill et al. (2010).The authors conducted in-depth interviews to understand the experiences of mortgage distress from the perspective of borrowers. They pointed out that borrowers define themselves as having a mortgage problem not only when they are in arrears, but when they are struggling to make payments on time, which may question conventional definitions of mortgage distress and the measurement of mortgage distress in terms of arrears.

Y. McCarthy and K. McCquinn (2011) used the Mortgage Repayment to Income (MRTI) ratio to monitor and assess the financial situation of mortgage debtors. They showed that a high credit burden is characteristic of younger households, those with a female head of the household and those from an urban area. Waldron (2016) developed a more comprehensive indicator to identify and categorize households based on the severity of their mortgage difficulties (Waldron & Redmond, 2017). These studies formed the basis of our analysis and will therefore be described in detail. The analysis was based on a primary study carried out on a representative sample of mortgagers from the suburbs of Dublin. In this way, they were able to differentiate between the "overt casualties" (i.e. those that have restructured their mortgage, are in arrears, or facing repossession) and the "unrevealed casualties" of the financial crisis. They defined the second category as those households who are, admittedly, repaying their mortgages, but are doing so with difficulty and are, in fact, on the verge of losing their liquidity. Three indicators were used to assess mortgage stress and "unrevealed casualties" were identified as those to whom (1) a mortgage payment is a large financial load (*payment burden*), (2) those who expand more than a third of their net earnings to make their payment and earn less than € 50,292 (*affordability problem*), as well as those (3) who cannot afford to meet an unexpected expenditure of € 9,854 (*liquidity problem*). Next, Waldron and Redmond (2017) divided the respondents into groups of those experiencing "low mortgage stress" (including households who declared having one of the three above-mentioned problems), those undergoing "moderate mortgage stress" (consisting of households who identified having two or three of those issues) and those whom they dubbed "overt casualties". Their research was conducted during a period of recession, and households falling into the "overt casualties" group accounted for 17% of all respondents. About one in five respondents was struggling with “moderate stress”, while one in four had to deal with "low mortgage stress". Only 37% of the full sample of mortgagers did not exhibit any form of mortgage stress. In the subsequent step of their analysis, Waldron and Redmond (2017) examined the relations between the distribution of mortgage stress groupings with the socio-economic, demographic, and mortgage product profiles of respondents. They discovered that households that purchased a home during the peak of the bubble, those whose LTV was high, those with lower incomes, and those in which the head of the household was unemployed and worked as a non-manual, skilled, and semi-skilled worker (in contrast to professional and managerial workers) were over-represented within the overt and moderate stress groups. They also confirmed a relationship between mortgage stress and the quality of life reflected in many respondents' reported feelings of regret regarding their property purchases. Indeed, many people who dutifully paid back their mortgage had to cut other expenses which reduced their welfare and well-being. The authors also analyzed relationships between mortgage stress categories and a range of financial and non-financial coping strategies for managing mortgage payment stress.

## 3. Data and Methods

Based on studies completed by Waldron and Redmond (2017) and Waldron (2016) we attempted to construct an assessment indicator that would enable the comparison of the financial situation of homeowners and tenants. Our modified index has been called "housing cost stress". The selection of indicators used in the creation of our index was limited by data availability caused by our decision to use micro-data from *European Union Statistics on Income and Living Conditions* (*EU-SILC*) for 2018.

We distinguished - based on the EU-SILC database - (1) homeowners paying mortgage (2) tenants paying market rent. The expression “homeowner household” refers to the situation in which the owner of the flat is a member of the analyzed household. The expression “owner paying mortgage” refers to a situation when he/she has no more mortgage to pay off for his / her main dwelling (paying

loans for other dwelling is not considered). Rent at market price applies to all situations where the tenant pays the market price for renting or subletting a flat (Methodological Guidelines…, 2018). In Table 1 we have outlined how the indicator was constructed.

**Table 1**

Housing cost stress - categorization and measurement

| | Indicator | SurveyQuestion | Measurement |
|---|---|---|---|
| **Housingcoststressindicators** | Payment Burden | Please consider your total housing costs including mortgage repayment (installment and interest) or rent, insurance and service charges (sewage removal, refuse removal, regular maintenance, repairs and other charges). To what extent are these costs a financial burden to you? | A Heavy Burden |
| | Affordability | Total housing cost / disposable income of a household | > 40% disposable income |
| | Illiquidity | Can your household afford an unexpected required expense 1 280 PLN* and pay through its own resources? | No |
| | Arrears | In the past twelve months, has the household been in arrears, i.e. has been unable to pay on time due to financial difficulties for rent/ mortgage repayment for the main dwelling? | Yes |
| | | **Measurement** | |
| **Levels of housing cost stress** | None | no housing cost stress indicators | |
| | Low | one housing cost stress indicator but no arrears | |
| | Moderate | Two or three housing cost stress indicators but no arrears | |
| | In arrears | household is/was in arrears in last 12 months | |

* *about 306 €*

*Source*: own elaboration.

We used four indicators to assess housing cost stress: payment burden, affordability problems, illiquidity problems and arrears in housing cost. In the research of Waldron and Redmond (2017) and Waldron (2016), the "payment burden" indicator was assigned a value of 1 if the borrower considered the current mortgage cost as a heavy burden. In our research, mortgagers and tenants were asked regarding their burden in respect to their total housing costs[2]. The second indicator – affordability – assumes the value of 1 when housing costs exceed 40% of a household's disposable income. We slightly modified the indicator used by Waldron and Redmond (2017) and Waldron (2016) here, which checked whether more than 1/3 of the average after-tax monthly income is spent on mortgage payments and if the household net income is less than € 50,292. We, on the other hand, decided to use the housing cost overburden rate applied by Eurostat, which refers to households where the total housing costs ("net" of housing allowances) represent more than 40% of disposable income ("net" of housing allowances)(Eurostat). Our third indicator – illiquidity - does not differ from that used by Waldron and Redmond (2017) and Waldron (2016). We checked if a household could afford an unexpected required expense and pay it using its own resources. Through the use of the above indicators, similarly to Waldron and Redmond (2017), we were able to qualify households into

[2] Total housing costs according to EU-SILC methodology means include: for owners: mortgage interest payments1 (net of any tax relief), gross of housing benefits (i.e. housing benefits should not be deducted from the total housing cost), structural insurance, mandatory services and charges (sewage removal, refuse removal, etc.), regular maintenance and repairs, taxes, and the cost of utilities (water, electricity, gas and heating); for tenants (at market price): rental payments, gross of housing benefits (i.e. housing benefits should not be deducted from the total housing cost), structural insurance (if paid by the tenants), services and charges (sewage removal, refuse removal, etc.) (if paid by the tenants), taxes on dwelling (if applicable), regular maintenance and repairs and the cost of utilities (water, electricity, gas and heating) (*Methodological Guidelines…*, 2018).

groups: no stress, low stress (one housing cost stress indicator but no arrears), moderate stress (two or three housing cost stress indicators but no arrears), and those with arrears of housing payments (Table 1).

**Table 2**

Descriptive statistics and coding

| Variable | Definition | in: | Distribution of variables | | Significance of the difference |
|---|---|---|---|---|---|
| | | | Credit owners | Market renters | |
| | | | means | | t-test |
| **Age** | age of the person | Years | 40.7 | 38.3 | - |
| **Net income** | total household (all household members) net income in 2017 | thsd PLN | 82.55 | 51.20 | *** |
| **Net income per person** | net income in 2017 per one person in a household | thsd PLN | 27.13 | 21.30 | *** |
| **Relocation** | number of years since purchasing for the owners or signing the contract for the tenants | Years | 8.4 | 7.4 | *** |
| **Rooms** | Number of rooms available to the household | Room | 3.5 | 2.1 | *** |
| | | | frequencies | | Pearson's chi-squared test |
| **Partnership** | married couple<br>unmarried couple<br>single | % | 77.2<br>16.2<br>6.6 | 44.3<br>27.1<br>28.3 | *** |
| **Household type** | single<br>single parents<br>adults<br>family with children | % | 3.5<br>1.3<br>23.9<br>71.9 | 17.6<br>5.5<br>37.8<br>39.1 | *** |
| **Health** | a person assessed his/her health as (very) bad | % | 2.5 | 6.4 | *** |
| **Tertiary education** | a person has any tertiary education | % | 48.6 | 24.6 | *** |
| **Working** | a person is an employee, self-employed or retired | % | 79.1 | 66.1 | *** |
| **Permanent contract** | a person has a permanent work contract | % | 60.9 | 55.7 | *** |
| **Supervisory** | a person works at supervisory position | % | 22.2 | 11.4 | *** |
| **Degree of urbanization** | Level of urbanization:<br>- densely populated - areas with a population density of no less than 1500 people per km², and town/city population of no less than 50,000 (reference)<br>- medium population density - areas with a population density of no less than 30 people per square kilometre, and town population of no less than 5,000.<br>-low population density, all other areas. | % | 43.1<br>26.8<br>0.1 | 60.7<br>20.1<br>19.2 | *** |
| **Dwelling type** | detached house<br>semi-detached or terraced house<br>apartment or flat | % | 38.3<br>7.9<br>53.8 | 5.6<br>1.6<br>92.8 | *** |
| **N** | | | 2895 | 1132 | |

Significance: ***p<.001;**p<.01;*p<.05

*Source:* own elaboration: EU-SILC, Poland database, panel 2018.

Next, we compared the socio-demographic (age, partnership, household size, health), economic (tertiary education, employment, having a temporary contract, having a supervisory position, net income, and net income per capita), as well as some housing situations (number of rooms, building type, years from last relocation and degree of urbanization) characteristics of individual households (Table 2). We included both currently employed as well as retired people since, in our opinion, housing decisions are largely the result of not only a person's current economic situation but also his or her professional history. We utilized Spearman's rank correlation coefficient (for quantitative

variables) as well as Cramer's V (for categorical and nominal variables) to assess the associations between the variables and the housing cost stress indicator. Cramer's V is expressed as a value between 0 (complete independence) and 1 (complete dependence).

In total, our sample consisted of 2,895 people fulfilling the criteria of mortgagers and 1,132 who met the qualifications of market tenants. These two groups differed in numerous respects. There were many more singles, people living in large cities, and apartments or flats among the tenants. The group of owners, on the other hand, consisted of more married people, those who were raising children, exhibited higher education levels, and worked in supervisory positions. Homeowners more often lived in houses than renters. The sum of their earnings was significantly higher than that of the tenants, however, differences practically disappeared when the total was divided by the number of household members. Mortgagers and market tenants differed slightly in respect to their professional situation and age. From the perspective of our study, it is favorable that the two groups did not vary considerably with relation to the time of their last relocation.

## 4. Empirical results

### 4.1. Housing cost stress of mortgagers and tenants

We first compared the housing cost stress of mortgagers and market tenants. We mainly notices that, despite the small scale of declared payment arrears (3.4% of owners and 6.1% of tenants) in Poland, a significant part of mortgagers and market tenants find it difficult to bear housing costs. Although this number is considerably lower than that seen by Waldron & Redmond (2017) and Waldron (2016), it must be remembered that the manner in which we analyzed the "overt casualties" group differed from the method used by those authors as well as that our studies concerned a period of a housing boom, while rises in indicator values should rather be expected during a recession. Nevertheless, similarly to Waldron & Redmond (2017), we also observed that less than half of the respondents declare not having housing cost related problems - 48% of mortgagers and just under 19% of market tenants (compared to 37% of mortgagers in Waldron's research). It allows the first research hypothesis that, despite the small scale of mortgage arrears in Poland, more than half of mortgagers suffer from housing cost stress to be confirmed.

**Table 3**

The extent of housing cost stress among mortgagers and market tenants in Poland (%)

| Indicator | Owners with credit | Tenants | Differences as fractions (sig.) |
|---|---|---|---|
| **Accumulation of housing cost stress indicators:** | | | |
| **None** | 48.0 | 18.8 | *** |
| **Low** | 34.0 | 32.3 | - |
| **Moderate** | 14.6 | 42.8 | *** |
| **In arrears** | 3.4 | 6.1 | - |
| **Having problem with:** | | | |
| **Payment burden** | 44.8 | 67.7 | *** |
| **Affordability** | 3.4 | 30.0 | *** |
| **Liquidity** | 20.2 | 46.9 | *** |
| **N** | 2,895 | 1,132 | - |

Significance: ***p<.001;**p<.01;*p<.05;

*Source:* own elaboration: EU-SILC, Poland database, panel 2018.

Additionally, we not only noticed a greater share of people with housing cost stress among renters but also its greater accumulation with 42% of them declaring that they have experienced moderate housing cost stress (2 or 3 of considered problems) while among borrowers this reached a level of 14.6% (slightly lower than that observed by Waldron). Generally, our results indicate that market tenants, as well as mortgagers in Poland, have problems with meeting housing costs although, for the most part, they make their payments without delays. Whereas the scale of this problem is significant with respect to mortgagers, it is considerably larger in relation to market tenants. As a result we have not confirmed the second hypothesis - the proportion of people experiencing housing cost stress in 2018 in Poland was higher among market renters than among mortgagers.

### 4.2. Risk factors for housing cost stress

Table 4 presents the distribution of housing cost stress groupings based on respondents' socio-economic and demographic factors, as well as measures of association with our indicator. We observe that the average age of people with a high housing cost stress index was higher than for those declaring little or no stress, although differences between them are not significant. We see it as quite surprising that younger people usually are at the early growth phase of the family cycle and may not have reached their full earning potential, but this observation is similar to that made by Waldron & Redmond (2017).

Among borrowers, the intensification of housing cost stress was not connected with their partnership status. For market tenants, we noticed that this problem more often concerns singles than couples. According to Rea and Parker (1997) the relation is moderate when the V-Cramer indicator is between 0.20 and 0.40 and relatively strong when it falls between 0.40 and 0.60, rarely achieving a value of 0.80 or above. We see that mortgagers in bad health are over-represented among the overt (10.1 percent) and moderate (6.9 percent) stress groups. The same can be observed concerning tenants where the share of people with health problems is 9.3% in the moderate stress group and 11.6% in the overt group. Similar to Waldron & Redmond (2017), we discovered that higher stress levels are evident among particular social classes. The percentage of respondents with higher education levels, in relation to both borrowers and renters, decreases among people who have exhibited severe housing cost stress. This means that people with a lower education are more susceptible to problems connected with housing costs while those holding management positions are less likely to experience these issues.

We expected that the purchase of a larger home would be connected with a higher risk of problems with solvency but the results of our study did not confirm this assumption. We also did not notice a connection between the type of building and such problems (similarly to Waldron& Redmond2017) which means that we have not observed that house owners with mortgages were more at risk of having issues with meeting their payments than apartment owners. The biggest correlation with the level of housing cost stress was seen with respect to total income as well as per capita income and, among mortgagers, this relation was moderate, while among market tenants, it was relatively strong.

**Table 4**

Distribution of the housing cost stress groupings based on respondents socio-economic and demographic factors

| | Mortgagers | | | | **association[a]** | Tenants | | | | **association[a]** |
|---|---|---|---|---|---|---|---|---|---|---|
| | none | low | mode-rate | overt | | none | low | mode-rate | overt | |
| Age | 40.1 | 40.8 | 42.1 | 43.0 | **0.073*** ** | 37.3 | 37.5 | 39.7 | 42.3 | **.072** |
| Partnership: | | | | | | | | | | |
| Married Couple | | | | | **0.045** | | | | | **.154*** ** |
| Unmarried Couple | 72.2 | 78.6 | 74.6 | 73.7 | | 41.8 | 53.7 | 40.4 | 42.0 | |
| Single | 17.0 | 15.0 | 15.4 | 18.2 | | 41.3 | 24.9 | 24.9 | 18.8 | |
| Household type: | 5.8 | 6.4 | 10.0 | 8.1 | | 16.9 | 21.4 | 34.6 | 39.1 | |
| Single | | | | | | | | | | |
| Single parents | 3.0 | 3.1 | 5.8 | 5.6 | **0.088*** ** | 11.4 | 15.1 | 20.9 | 14.9 | **.112*** ** |
| Adults | 1.0 | 1.2 | 2.3 | 3.3 | | 3.5 | 2.7 | 7.8 | 13.4 | |
| Family with children | 29.5 | 16.9 | 22.6 | 20.0 | | 46.5 | 35.3 | 37.1 | 29.9 | |
| In bad health | 66.5 | 78.9 | 63.9 | 71.1 | | 38.6 | 46.8 | 34.3 | 41.8 | |
| Tertiary education | 0.7 | 2.5 | 6.9 | 10.1 | **0.159*** ** | 4.7 | 3.3 | 9.3 | 11.6 | **.119*** ** |
| Working | 54.7 | 49.4 | 31.0 | 31.3 | **0.171*** ** | 33.3 | 30.4 | 18.4 | 10.1 | **.172*** ** |
| Temporary contract | 81.9 | 79.3 | 73.2 | 63,6 | **0.102*** ** | 68.5 | 79.5 | 57.5 | 68.1 | **.198*** ** |
| Supervisory | 62.1 | 61.5 | 60.0 | 43.4 | **0.069** ** | 45.1 | 52.9 | 40.8 | 37.7 | **.111** ** |
| | 26.7 | 18.9 | 18.2 | 9.1 | **0.112*** ** | 16.0 | 15.1 | 7.8 | 8.7 | **.116** ** |

| position | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Populated area: | | | | | | | | | | |
| Densely | 45.6 | 42.6 | 37.2 | 40.4 | **0.059**** | 61.0 | 56.4 | 61.9 | 60.9 | **.063** |
| Intermediate | 25.5 | 29.1 | 24.9 | 30.3 | | 24.4 | 22.7 | 17.5 | 20.3 | |
| Thinly | 28.9 | 28.2 | 37.9 | 29.3 | | 14.6 | 20.8 | 20.6 | 18.8 | |
| No of rooms | 3.5 | 3.6 | 3.3 | 3.4 | **-0.027** | 1.9 | 2.2 | 2.1 | 2.1 | **-.049** |
| Dwelling type | | | | | | | | | | |
| Detached house | | | | | | | | | | |
| semi-detached/ terraced house | | | | | **0.041** | | | | | **.047** |
| apartmentor flat | 38.2 | 38.3 | 37.2 | 42.4 | | 7.7 | 4.9 | 4.5 | 5.8 | |
| | 9.1 | 7.5 | 5,9 | 3.0 | | 0.5 | 1.9 | 1.9 | 1.4 | |
| | 52.7 | 54.2 | 56.9 | 54.6 | | 91.9 | 93.2 | 93.6 | 92.8 | |
| Net income | 93.9 | 76.5 | 60.2 | 80.1 | **-0.254***** | 74.5 | 60.6 | 38.0 | 41.5 | **-.454***** |
| Net income per person | 32.2 | 23.5 | 19.5 | 24.7 | **-0.299***** | 30.8 | 25.1 | 16.1 | 16.1 | **-.411***** |
| Relocation | 7.9 | 8.5 | 8.9 | 10.2 | **0.052**** | 2.1 | 5.5 | 7.7 | 7.8 | **.074** |
| N | 1389 | 985 | 422 | 99 | | 213 | 365 | 485 | 69 | |

[a] for nominal variables - Cramer's V coefficient, for quantitative variables – Spearman's rank correlation coefficient

Significance code: ***p<.01;**p<.05;*p<.10

*Source:* own elaboration: EU-SILC, Poland database, panel 2018.

## 5. Discussion and conclusions

In our research, we aim to add empirical facts to the ongoing discussion about the economic and financial well-being of people who, in recent years, bought a home with a mortgage in Poland and compare it to those who rent one. In a complementary paper, we identified reasons as to why people decide to buy a home rather than rent one (Matel & Olszewski, 2021), while the current publication analyses whether mortgage takers are better or worse off than their peers who rent. Although buying a home by taking out a mortgage, thus breaking down a huge one-time payment into many monthly payments, might be as costly as renting, people feel that, after the mortgage has been paid off, they will become the property's permanent owner. However, the additional significant fixed transaction costs may motivate buyers to overshoot and to buy a home that, in the long run, is too costly, which, in turn, might lead to severe financial problems. Since individuals who thus become homeowners are strongly motivated to remain active within the labor market, these risky borrowing decisions may cause advancement in one's social and economic status. However, loss of financial liquidity caused by negative life events such as, for example, loss of work or the deterioration of one's health may have tragic consequences.

Our studies indicate that similar to the period of recession in Ireland (Waldron & Redmond, 2017), during 2018 in Poland (a period of a housing boom), despite a low percentage of mortgagers who are in arrears in respect to their housing costs, a large portion of them (approximately half) has problems with meeting their housing obligations. At the same time, our research shows that their situation in this respect is still better than that of those people who decided to rent a home. All housing cost stress indicators, as well as their accumulation, are higher for the market tenant group. Our study, therefore, proves that, generally, meeting housing costs in Poland in situations when people have to provide for their accommodation (and it is not inherited or they do not live with their parents) is difficult, but their choices are not only limited, as demonstrated by our previous studies, but also connected to significant risk. This in turn confirms that within banking statistics it might be advantageous to go beyond the traditional definition of high-risk borrowers (O'Neill et al., 2010, Waldron & Redmond, 2017) which would allow better monitoring of the stability of the mortgage sector.

In our opinion, this situation is the result of the specific character of the rental market in Poland. This form of accommodation is costly and often even more expensive than homeownership. As a result, with respect to family per capita earnings, there are almost no differences between people who

decide to rent and mortgagers with the only variance being their family situation. Thus, the market tenant group consists of a higher percentage of people who are at the stage of forming a household, mainly singles, meaning that their overall income is smaller than that of multi-person households. Housing costs, however, are to a large degree constant and within this group; therefore, meeting them is more difficult.

Our research confirms the existence of a previously identified problem (Twardoch & Heciak 2021; Matel & Olszewski, 2021) namely that in Poland there is a shortage of accommodations that could fulfill the long-term housing needs of people with lower incomes or so-called accessible housing. In truth, people who would like to become independent and do not possess strong financial support must choose between the risky option of buying a home by obtaining a mortgage and the alternative way, renting, which deprives them of the chance to avoid the wealth gap existing between owners and tenants. It is, therefore, not surprising that, for most, renting is not an option that remains attractive in the long run since, economically, it is only justifiable for a short time when its flexibility compensates for its higher costs. This, in turn, leads to a situation where households are forced to assume the risks connected to buying a home, even when related obligations are too high of a burden and may prevent them from being able to meet unforeseen expenses as well as carry a significant risk of losing financial solvency.

Finally, it is necessary to mention that the EU-SILC data does not focus on mortgage takers and, from year to year, the sample changes by a fourth. Since the households cannot be traced over time, comparisons spanning the entire business cycle should not be made. The data, however, is well suited to portray more general trends and developments.

**Additional information:**
The source of the data is the Central Statistical Office, The European Union Statistics on Income and Living Conditions (EU-SILC). The Central Statistical Office is not liable for the data and conclusions presented in the publication.

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**References**

Aoki, K., Proudman, J., & Vlieghe, G. (2004). House prices, consumption, and monetary policy: A financial accelerator approach. *Journal of Financial Intermediation, 13*(4), 414–435. https://doi.org/10.1016/j.jfi.2004.06.003

Bajari, P., Chan, P., Krueger, D., & Miller, D. (2013). A dynamic model of housing demand: Estimation and policy implications. *International Economic Review, 54*, 409–442. https://doi.org/10.1111/iere.12001

Brunnermeier, M. K. (2009). Deciphering the liquidity and credit crunch 2007–2008. *The Journal of Economic Perspectives, 23*(1), 77–100. https://doi.org/10.1257/jep.23.1.77

Central Bank of Ireland. (2010a). *Banking supervision: our new approach.* Central Bank & Financial Services Authority of Ireland.

Central Bank of Ireland. (2010b). *The Irish Banking Crisis, Regulatory and Financial Stability Policy 2003-2008*. A Report to the Minister for Finance by the Governor of the Central Bank.

Ciarlone, A. (2015). House pricecycles in emerging economies. *Studies in Economics and Finance, 32*(1), 17–52. https://doi.org/10.1108/SEF-11-2013-0170

Czapiński, J., & Panek, T. (red.) (2014). *Diagnoza Społeczna 2013. Warunki i jakość życia Polaków [SocialDiagnosis 2013. Conditions and quality of life of Poles]*.Raport, Warszawa.

Dynan, K. E., & Kohn, D. L. (2007). The rise in US household indebtedness: Causes and consequences. *Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board*, Washington, D.C.

Eurostat. (2021).http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

Faber, R. J., & O'Guinn, T. C. (1988). Compulsive consumption and credit abuse (Zwanghafter Konsum und Kreditmißbrauch). *Journal of Consumer Policy, 11*(1), 97–109. https://doi.org/10.1007/BF00411522

Forrest, R. (2011). Households, homeownership and neoliberalism. In: Forrest R., & Yip, N.M., (ed.). *Housing Markets and the Global Financial Crisis*, Edward Elgar Publishing. https://doi.org/10.4337/9781849805841.00006

Christie, H. (2000). Mortgage arrears and gender inequalities. *Housing Studies, 15*(6), 877–905. https://doi.org/10.1080/02673030020002591

Iacoviello, M. (2004). Consumption, house prices, and collateral constraints: A structural econometric analysis. *Journal of Housing Economics, 13*(4), 304–320. https://doi.org/10.1016/j.jhe.2004.09.004

Iacoviello, M. (2010). *Housing in DSGE models: Findings and new directions.*In Housing Markets in Europe (pp. 3-16). Springer Berlin Heidelberg.

Łaszek, J., Augustyniak, H., & Olszewski, K. (2021). The Development of the Rental Market in Poland. In R. Sobiecki, J. Łaszek, & K. Olszewski (Eds.), *Real Estate at Exposure*. New Challenges, Old Problems. SGH Warsaw School of Economics. Warsaw.

McCarthy, Y., & McQuinn, K. (2011). How Are Irish Households Coping with their Mortgage Repayments? Information from the Survey on Income and Living Conditions, *The Economic and Social Review. Economic and Social Studies, 42*(1), 71–94.

Matel, A., & Olszewski, K. (2021). *Changing Determinants of Tenure Choice of Poles. ENHR 2021 working paper.*

Matel, A. (2021a). *Stay or move out? Young adults housing trajectories in Poland over time and during economic cycle*. Unpublished

Matel, A. (2021b). Tenure status in life cycle cohorts in Poland. *Real Estate Management and Valuation, 29*(3), 1–12. https://doi.org/10.2478/remav-2021-0017

*Methodological Guidelines and Description of EU-SILC Target Variables.* (2018). European Commission, Eurostat.

Murphy, E., & Scott, M. (2014). Household vulnerability in rural areas: Results of an index applied during a housing crash, economic crisis and under austerity conditions. *Geoforum, 51*, 75–86. https://doi.org/10.1016/j.geoforum.2013.10.001

NBP. (2015). Zasobność gospodarstw domowych w Polsce. Raport z badaniapilotażowego 2014 r. [Household wealth in Poland. Report of the 2014 pilot study] https://www.nbp.pl/aktualnosci/wiadomosci_2015/Raport_BZGD_2014.pdf

NBP. (2016). Report on the situation in the Polish residential real estate market in 2015. Polish National Bank.

NBP. (2020a). Report on the situation in the housing and commercial real estate market in Poland in 2019. Polish National Bank.

Nettleton, S., & Burrows, R. (2001). Families coping with the experience of mortgage repossession in the 'new landscape of precariousness'. *Community Work & Family, 4*(3), 253–272. https://doi.org/10.1080/01405110120089332

Olszewski, K., Augustyniak, H., Laszek, J., Leszczynski, R., & Waszczuk, J. (2016). On the dynamics of the primary housing market and the forecasting of house prices. *IFC Bulletins chapters*, 41.

O'Neill, P., Duante-Camacho, O., Casiro, J., Gwyther, G., Phibbs, P., Bryan, D., Rafferty, M., & Allon, F. (2010). *The Experience of Mortgage Distress in Western Sydney*. University of Western Sydney, Penrith, http://www.uws.edu.au/__data/assets/pdf_file/0019/140536/mortgage_distress_report-webversion_hires.pdf

Rea, L. M., & Parker, R. A. (1997). *Designing and Conductiong Survey Research – A Comprehensive Guide.* Jossey-Bass.

Rubaszek, M. (2019). Private rental housing market underdevelopment: Life cycle model simulations for Poland. *Baltic Journal of Economics, 19*(2), 334–358. https://doi.org/10.1080/1406099X.2019.1679558

Rubaszek, M., & Czerniak, A. (2017). Preferencje Polaków dotyczące struktury własnościowej mieszkań: opis wyników ankiety [Housingtenurepreferences of Poles: the surveyresults]. *Bank i kredyt*, 48 (2), 197-234.

Rubaszek, M., & Rubaszek, J. (2021). Housing tenure preferences among students from two polish universities. *Real Estate Management and Valuation, 29*(2), 71–83. https://doi.org/10.2478/remav-2021-0014

Rubaszek, M., & Rubio, M. (2020). Does rental housing market stabilize the economy? A micro and macro perspective. *Empirical Economics, 59*(1), 233–257. https://doi.org/10.1007/s00181-019-01638-z

Sabaté, I. (2018). To repay or not to repay: Financial vulnerability among mortgage debtors in Spain (Pagar ou não pagar a dívida: vulnerabilidade financeira entre os devedores de crédito para compra de habitação em Espanha). *Etnográfica (Lisboa), 22*(1), 5–26. https://doi.org/10.4000/etnografica.5130

Salzman, D. A., & Zwinkels, R. C. J. (2013). *Behavioural Real Estate*, Tinbergen Institute Discussion Paper, no. 13-088/IV/DSF58. https://doi.org/10.2139/ssrn.2289214

Scanlon, K., & Whitehead, C. (2011). The UK mortgage market: Responding to volatility. *Journal of Housing and the Built Environment, 26*(3), 277–293. https://doi.org/10.1007/s10901-011-9220-2

Twardoch, A., & Heciak, J. (2021). *Affordable housing in Poland – the study of a nonexistent sector*.URL : https://www.ethz.ch/content/dam/ethz/special-interest/conferencewebsites-dam/no-cost-housing-dam/documents/TwardochHeciak/_final.pdf

Waldron, R. (2016). The "unrevealed casualties" of the Irish mortgage crisis: Analysing the broader impacts of mortgage market financialisation. *Geoforum, 69*, 53–66. https://doi.org/10.1016/j.geoforum.2015.11.005

Waldron, R., & Redmond, D. (2017). "We're just existing, not living!" Mortgage stress and the concealed costs of coping with crisis. *Housing Studies, 32*(5), 584–612. https://doi.org/10.1080/02673037.2016.1224323

Zajączkowski, S., & D., Żochowski (2007).*Obciążenia gospodarstw domowych spłatami długu: rozkłady i stress testy – na podstawie badań budżetów gospodarstw domowych GUS [Household debt repayment burden: distributions and stress tests - based on CSO household budget surveys]*. NBP MateriałyiStudia, 221.