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SENIORS' REVEALED PREFERENCES IN THE HOUSING MARKET IN POZNAŃ

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ABSTRACT. Demographic changes, manifested in the ageing of society are one of the significant challenges of contemporary Europe. As senior citizens will represent the increasingly large part of the society, it seems necessary to look more broadly at the needs of this group. What is one of the fundamental needs of every human being is the need of accommodation. The existing body of literature does not provide a sufficient number of studies of seniors' housing needs. Most Polish studies concerning the characteristics of this group of buyers and their preferences regarding the housing market are qualitative. They are usually purposive sample surveys the purpose of which is to identify the profile and preferences of prospective buyers. In most cases, they concern seniors' preferences regarding new housing products (so-called senior housing). In this paper, we undertook to identify senior buyers' revealed preferences in the secondary housing market in Poznań. To this end, we collected information on transactions concluded in the abovementioned market in the years 2010-2016. The base was supplemented with data from land and mortgage registers (information about the gender and age of buyers, and the method of financing the purchase of a property), data from the Register of Land and Buildings and with the use of Google Street View. In different sections of the paper, we included an overview of literature concerning methods of the analysis of consumer preferences and studies of housing preferences, we discussed research methods and sources of data, and finally, we presented the research findings and conclusions.

JEL Classification: R31

Keywords: buyers' preferences, housing market, seniors' preferences, revealed vs stated preferences.

Introduction

Demographic changes, manifested in the ageing of society are one of the significant challenges of contemporary Europe. Declining fertility, increasing longevity, and the progression of large-sized cohorts to the older ages are causing elder shares to rise throughout

the world (Bloom & Luca, 2016). This phenomenon is the consequence of mainly two factors, i.e. a drop in birth rates and longer life expectancy. The process of population ageing is characteristic of developed countries, especially large cities. The ageing of society changes the population structure as the share of young people decreases, while the percentage of senior citizens increases (Jancz, 2017). Since life expectancy becomes longer, the boundaries of the old age are modified. In accordance with the World Health Organization guidelines (*Active ageing : a policy framework*, 2002), it is assumed that early old age begins at 60[1], while the next stage, i.e. mature old age, is reached at the age of 75.

As senior citizens will represent the increasingly large part of the society, it seems necessary to look more broadly at the needs of this group. What is one of the fundamental needs of every human being is the need of accommodation. The existing body of literature does not provide a sufficient number of studies of seniors' housing needs. Most Polish studies concerning the characteristics of this group of buyers and their preferences regarding the housing market are qualitative. They are usually purposive sample surveys the purpose of which is to identify the profile and preferences of prospective buyers. In most cases, they concern seniors' preferences regarding new housing products (so-called senior housing).

As preliminary studies show, senior citizens, i.e. people at the age of 60 or more, accounted for about 10% of the buyers of residential properties in the secondary housing market in Poznań. In this paper, we undertook to identify the revealed preferences of this large group of buyers. To this end, we collected information about transactions concluded in the abovementioned market in the years 2010-2016. The base was supplemented with data from land and mortgage registers (information about the gender and age of buyers, and the method of financing the purchase of a property), data from the Register of Land and Buildings and with the use of Google Street View.

1. Literature review

People make choices based on their preferences throughout all their lives. Every person has to choose from some alternative undertakings in various spheres of life (Zinas & Jusan, 2012). Choices are based on different motivations, which determine the selection of a given option out of a set of alternative solutions considered. Molin et al. (1996) pointed out that "the choices made are understood as an echo of preferences".

In the theory of economics, preferences reflect consumers' tastes. A given consumer prefers those baskets of goods which maximise his or her utility, i.e. satisfaction resulting from the consumption of these goods (Salvatore, 2008). The analysis of consumers' preferences helps to identify the system of objective evaluations which are the basis for the consumer's choice (Rybicka 2003). It may be said that by purchasing a specific flat or house, buyers choose a set of attributes and services in a specific place. This set may encompass "the real living space, the vicinity of a workplace, the surrounding, the availability of different services, including schools, hospitals and shops, and a sense of belonging to the community of residents" (Kain, Quigley, 1970).

The problem of measuring preferences has been addressed by the scientists representing a great many disciplines (Budziński, Campbell, Czajkowski, Demšar, & Hanley, 2018; Collen & Hoekstra, 2001; de Koning, Filatova, & Bin, 2017; Hoeffler, 2003; Opoku & Abdul-Muhmin, 2010; Sirgy, Grzeskowiak, & Su, 2005). Because of its interdisciplinarity, some different approaches and models of preference examination have been created. For example, economists

[1] Having this in mind, for the sake of this paper, we assumed that seniors (also referred to as "senior citizens" and "senior buyers") are people at the age of 60 or more.

first of all focus on the prices of properties in order to identify the utility of their characteristic features (called attributes). Social geographers, in turn, deal with the influence of socio-demographic changes on housing. Over the last few decades, some different approaches to measuring preferences have been proposed, from simple, direct questions asked respondents to advanced models, which allow researchers to test assumptions underlying the choices made. What consumers want can be examined in a lot of different ways. It should be added here that different methods lead to different findings. The choice of a specific method cannot thus derive from the advantage of one method over another but should be determined by the type of information that a researcher is interested.

Each approach is based on a set of limiting assumptions, and that is why it serves a specific purpose. The classification of approaches to the studies of housing preferences may be made with the use of a few different schemes (Timmermans, Molin, & van Noortwijk, 1994). Basically, there are two broad approaches to examining preferences – revealed preference methods and declared preference methods. Studies of revealed preferences are based on consumers' real market decisions. In the analysis of this type of preferences, historical data are mainly used. Declared preferences, in turn, refer to consumer's hypothetical market behaviours (Głuszak, 2018; Gluszak & Marona, 2017; Źróbek, Trojanek, Źróbek-Sokolnik, & Trojanek, 2015). Both methods have certain common assumptions:

1) first, they assume that properties and their surrounding can be described with a set of characteristic features (attributes);
2) second, they assume that individuals or households make use of each of these attributes;
3) third, all these models assume that individuals combine their part-worth utility according to some rule to arrive at an overall preference or choice.

However, these approaches differ in terms of the specification of basic rules (i.e. the assumptions concerning the basic decision-making process). Depending on the adopted method, the procedure of data gathering is different, as is the evaluation model to a certain degree.

It should be remembered that both approaches have certain limitations. What is a potential limitation of the method of the revealed preference analysis is the fact that it assumes that revealed preferences reflect actual preferences (Timmermans et al., 1994). However, choices can often result from some limitations, such as insufficient income or imperfect information about the market. What is more, it is assumed that consumers always make rational choices and look for the best possible solutions (Jansen, Sylvia J.T., Coolen, & Goetgeluk, 2011). In reality, however, a consumer may not always have knowledge of all available options or may choose a specific flat driven by not entirely rational motives. Moreover, some significant explanatory factors that a researcher is not aware of may be ignored in the analysis of revealed preferences (Earnhart, 2002). Moreover, another limitation derives from the fact that some attributes may be correlated (e.g. bigger houses are usually more expensive), which may lead to wrong conclusions (Molin et al., 1996).

The method of declared preferences is not free of limitations, either. In some cases, this method may not be suitable because the respondents may express only temporary desires or ideals, which cannot be satisfied in the real housing market (Heijs, Carton, Smeets, & Gemert, 2009; Jansen, Sylvia J.T. et al., 2011). Moreover, this method assumes that consumers can articulate their preferences, while they can remain indifferent or their preferences may depend on specific conditions. Finally, the results obtained with the use of this method may be affected by such factors as the social desire of some goods, risk propensity and cognitive dissonance (Molin et al., 1996; Walker, Marsh, Wardman, & Niner, 2002).

Some economists, however, share a view that one can say a lot more about people's preferences by observing their choices rather than by listening to what they claim (Bernheim,

2009). Molin et al. (1996) pointed out that it is the act of actual choice which individual may reveal all their preferences, which is confirmed by anthropologist Margaret Mead, who said that "what people say, what people do, and what they say they do are entirely different things".

Factors which have been analysed in the studies of housing preferences so far usually concern the micro- and macro-level. In these researches stated and revealed preferences had been the basis of investigations. Ge and Hako (2006) using questionnaire surveys of two Japanese cities, analysed the characteristics of residential preferential patterns, residential choice factors and residential satisfaction, as well as their interrelationships. The size of the apartment turned out to be able to predict residential satisfaction (Hwang & Albrecht, 1987), and moreover could influence on the mobility of people (Diaz-Serrano & Stoyanova, 2010).

Other determinants of housing preferences included the quality of the external surrounding (Cellmer, 2011; Del Giudice et al., 2017; Kopsch, 2016; Naish, Tan, & Demirbilek, 2011; Szopińska & Krajewska, 2014; Trojanek & Huderek-Glapska, 2018; Trojanek, Tanas, Raslanas, & Banaitis, 2017), green areas (Czembrowski & Kronenberg, 2016; McCord et al., 2014; Olbińska, 2018; Trojanek, 2016; Trojanek, Gluszak, & Tanas, 2018), location (Karsten, 2007; Kryvobokov & Wilhelmsson, 2007), safety and the vicinity of the city center, public transport (Gadziński & Radzimski, 2016), the vicinity of the workplace, medical and educational centres (Ceccato & Wilhelmsson, 2011; Wu, 2010). Moreover, in turn, the analysed preferences included factors such as the architectural style of a building (Akalin et al., 2009; Stamps, 1999), safety, comfort, the layout of flat (Wang and Li, 2006; Wu, 2010). Such factors as the role of safety, the expected value of resale (Iqbal & Wilhelmsson, 2018; Renigier-Biłozor, Walacik, Źróbek, & d'Amato, 2018), facilities have also been studied, as well as the price of flat, location, distance from shops, schools (Turnbull, Zahirovic-Herbert, & Zheng, 2018; Wen, Zhang, & Zhang, 2014) and other facilities, and the house size (Borth & Summers, 2018).

Most previous studies concerned young people's preferences (Milić & Zhou, 2018; Wu, 2010), which is largely due to the fact that they constitute the most numerous group of buyers in the housing market. As far as studies involving seniors are concerned, they addressed: satisfaction with currently occupied flats (Moen & Erickson, 2001); changing demand for flats (Chiu & Ho, 2006); seniors' housing needs (Filipovič Hrast, Sendi, Hlebec, & Kerbler, 2019); the influence of cultural factors and intergenerational relations. The majority of these studies focused on the ageing population and the need to secure flats for old people. They indicated that price availability and social and housing preferences are the crucial determinants of planning houses and flats for senior citizens.

The studies of senior buyers' preferences in the Polish housing markets concerned local markets, usually the largest cities. They mainly examined declared preferences with the use of survey questionnaires. Śpiewak – Szyjka (2017), on the basis of a survey questionnaire carried out among 68 respondents at the age of over 60 years, analysed the current housing offer and the degree to which it is adapted to seniors' needs. A few studies concerned the market of Poznań. Jancz (2017), surveying real estate agents, found out what flats were most frequently purchased by senior buyers in Poznań and its surrounding area. A study of the satisfaction of seniors' housing needs in Poznań was carried out by Strączkowski (2013). On the basis of interviews with real estate agents, he analysed senior buyers' housing choices, their preferences and financial condition, and the reasons behind their choice of a flat. The housing situation of old people was also the subject of studies conducted in the market of Poznań (Strączkowski & Boruta, 2018).

2. Methodological approach

Poznań is located in Central-Western Poland, in the central part of Wielkopolskie Province. It is the fifth largest city in Poland by population (538.6 thousand inhabitants) and the eight largest by size (262 sq km). The city is an important industrial, commercial and tourist centre. Since the 1990s, there has been a systematic decrease in the number of Poznań residents (from 581.2 thousand in 1995 to 540.4 thousand in 2016, which means a decrease by approx. 7%), with a significant increase in the number of inhabitants of the commune poviat of Poznań. This is another phenomenon, apart from the ageing of inhabitants, characteristic of contemporary European cities (Tanaś, 2013; Tanaś & Trojanek, 2015). Figure 1 presents the age structure of Poznań residents in 2010-2016.

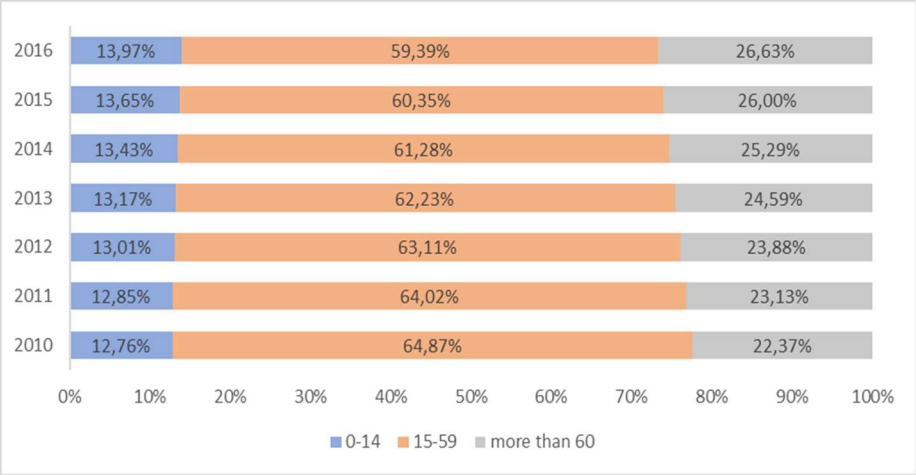

Figure 1. The age structure of Poznań residents in 2010-2016
Source: *Author's own work based on Statistics Poland.*

Figure 1 clearly shows that the age structure of the inhabitants has been changing. The share of the population in the productive age has been decreasing in the total number of inhabitants, while from year to year, the share of people over 60 years of age has been systematically growing (in the analysed period it is almost a 4 pp increase).

As mentioned in the introduction, this paper aimed to identify the revealed preferences of senior buyers in the secondary housing (residential) market in Poznań. In order to accomplish this goal, we first of all obtained information from the Register of Real Estate Prices and Values about transactions concluded in the secondary market in the years 2010-2016 in Poznań. Then, following the laborious and time-consuming examination of Sections II and IV of the Land and Mortgage Register of the properties that were sold in that period, we identified, among other things, the gender and age of buyers and the financing method (we checked more than 12.000 transactions – it was the only way to identify the age of buyers and after that we identified the seniors' group). Moreover, in order to obtain more precise information about the sold flats, the base was supplemented by data from the Register of Land and Buildings and with the use of Google Street View. After some organising efforts (which were necessary due to the insufficient information on transactions, the transaction in which a personal id was not provided were also ignored), we finally included 1,050 housing transactions in the analysis. The distribution of properties sold across the districts of Poznań is presented in figure 2.

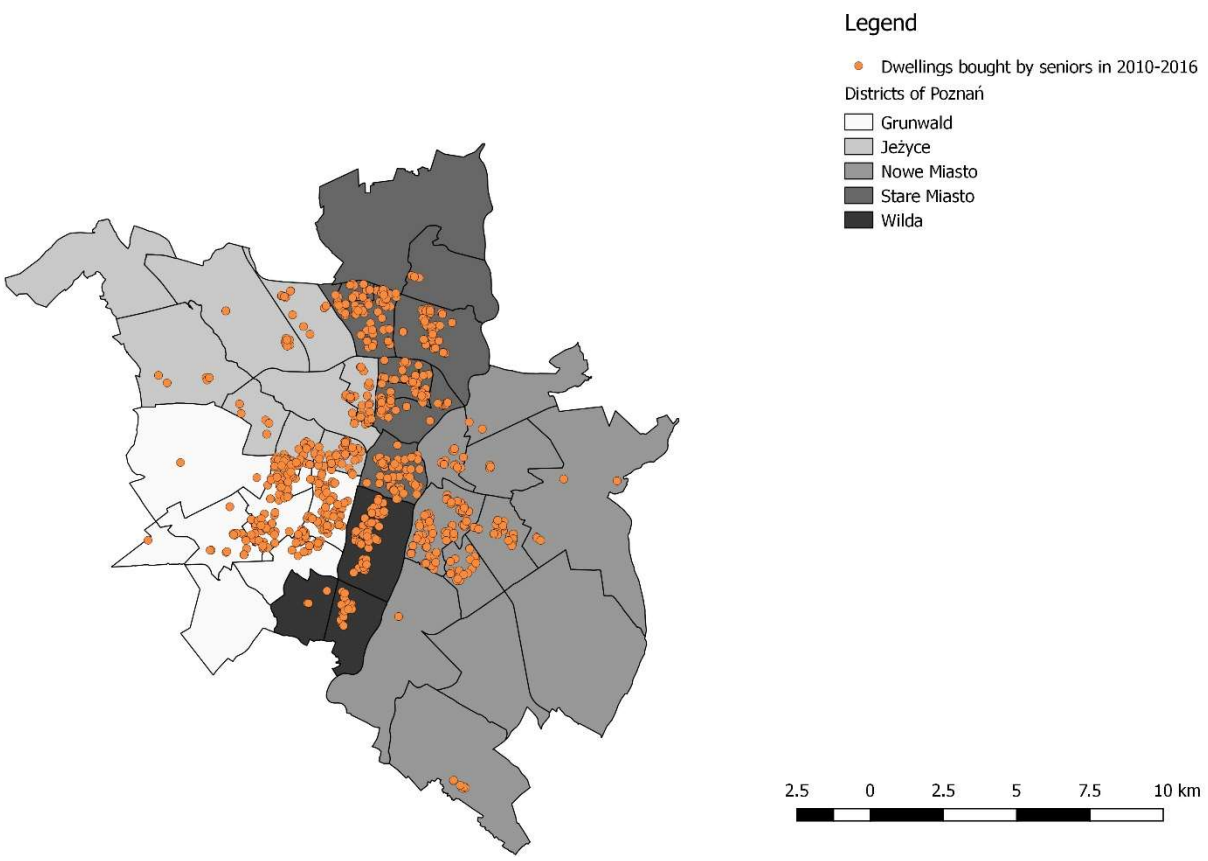

Figure 2. Transactions involving residential properties in Poznań in the years 2010-2016 (senior buyers)
Source: *Author's own work.*

We gathered the following information on the concluded transactions:

1) regarding buyers:
– the gender of buyers,
– the age of buyers,
– the method of financing the purchase of properties,
2) regarding the properties sold:
– location according to the district,
– floor space,
– construction technology,
– the age of the building,
– the height of the building,
– transaction price.

3. Research findings

3.1. The characteristics of the senior's buyers of residential properties

There are three primary groups (types) of the buyers of residential properties: married couples, women and men. Figure 3 presents the share of each group of buyers in the total number of transactions over the whole period under analysis.

Women constituted the largest group (45.43%) among the senior buyers of flats in the period under study. Married couples bought only slightly fewer flats (41%). It was men who

purchased flats least frequently (they accounted for only 13.62% of the total number of senior buyers). The structure of senior buyers did not change significantly throughout the whole period of analysis.

Senior buyers were divided into four age groups: 60-64, 65-69, 70-74 and over 74 years of age. In the case of married couples, the "average age of spouses" was established as the arithmetic mean of the age of husband and wife. The percentage of the particular age groups in the overall number of transactions is presented in figure 3.

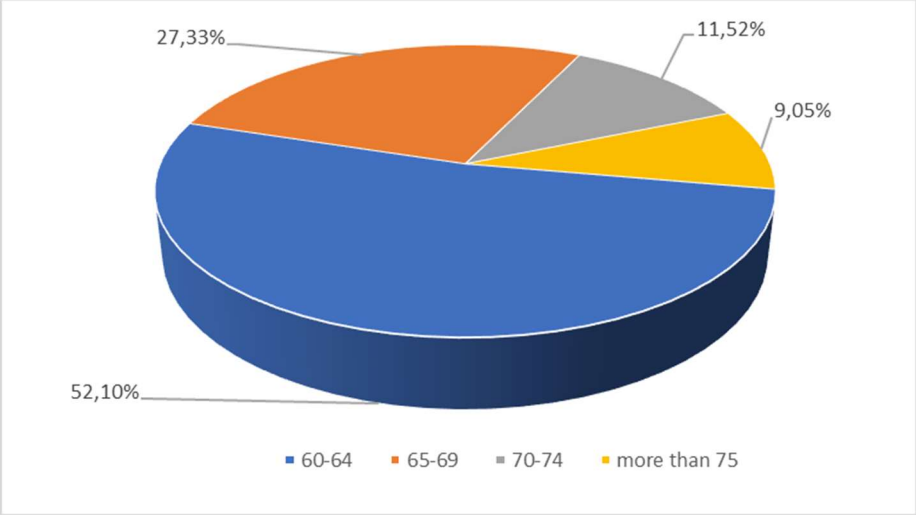

Figure 3. The structure of senior buyers according to age in the years 2010-2016 in Poznań.
Source: *Author's own work.*

People at the age of 60-64, represented more than half of senior buyers (52.1%). Every third buyer was at the age of 65-69, while the oldest buyers constituted the least numerous group. The analysis of the method of financing the purchase of a second-hand flat by people at the age of over 60 let us draw interesting conclusions. Senior buyers purchased more than 90 % of flats in the period under analysis for cash (regardless of a distinguished group of seniors), which is connected obviously with mortgage affordability.

3.2. Senior buyers' preferences in the secondary housing market in Poznań

On the basis of the collected data, we analyzed the revealed preferences of senior buyers of flats, taking into consideration: the location of flats in the different districts of Poznań, the floor space of flats, the construction technology, the age of the building, the height of the building, and the transaction price.

The data presented in Figure 4 may indicate buyers' preferences regarding the districts of Poznań.

Flats located in Nowe Miasto and Grunwald were the most frequent subjects of transactions. Flats in Wilda were the least popular among buyers. Older women and married couples tended to purchase flats in the district of Nowe Miasto, and then Grunwald. Men also favoured these two districts, but it was Grunwald where they bought more flats. Figure 5 presents flats according to their floor space.

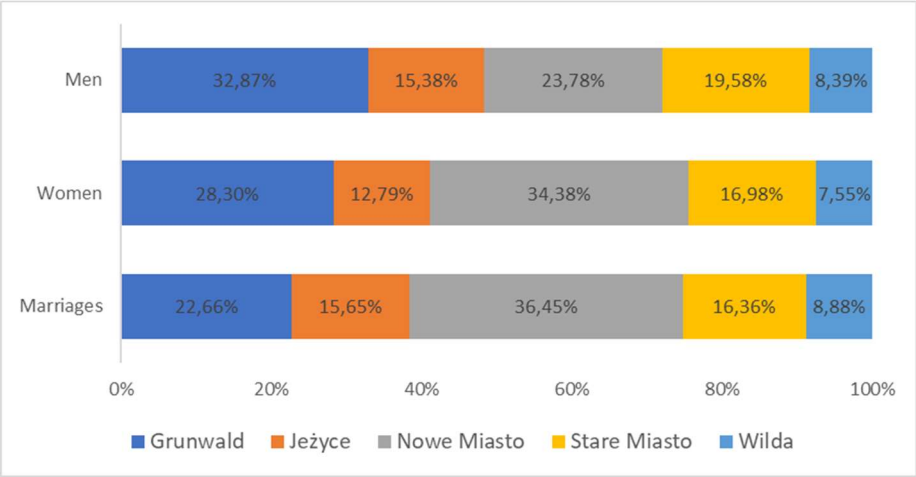

Figure 4. The percentage of flats bought by particular groups in the districts of Poznań in the years 2010-2016
Source: *Author's own work.*

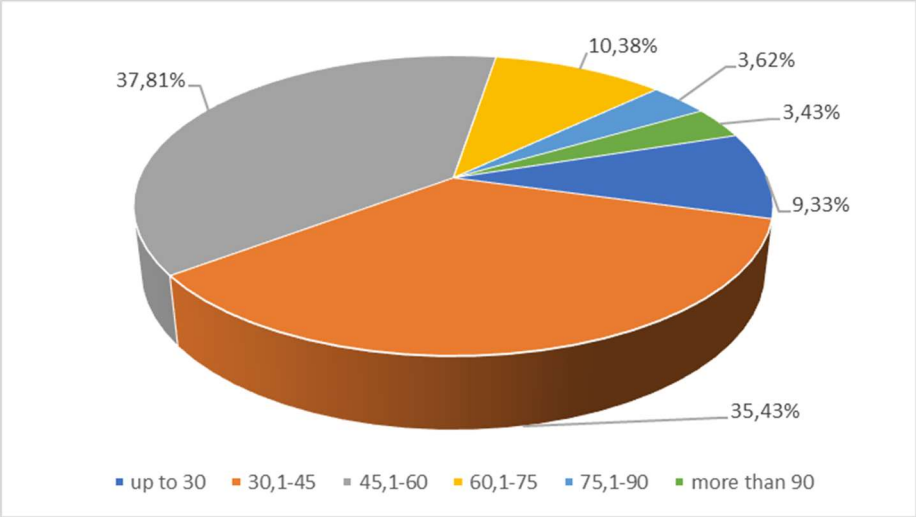

Figure 5. Flats purchased by senior buyers according to their floor space in the years 2010-2016.
Source: *Author's own work.*

The analysis of Figure 5 shows that seniors tended to buy flats with the floor space of 45.1-60 m^2, followed by those with the floor area of 30.1-45 m^2. The largest flats were the least popular (they were the subject of about 7% of all transactions). As regards the number of rooms, three- and four-room flats accounted for 60% of the whole, while two-room flats were the subject of almost 29% of transactions. In case of the construction technology, flats located in buildings built in the traditional technology accounted for more than two-thirds of the overall number of transactions concluded by senior buyers. Both in the case of older married couples and women, two-thirds of the flats they bought were located in traditionally built buildings. As far as male buyers are concerned, the share of flats located in large panel blocks was slightly smaller than in the case of the other two groups (about 27%). We also analyzed the age of buildings in which seniors bought flats (Figure 6).

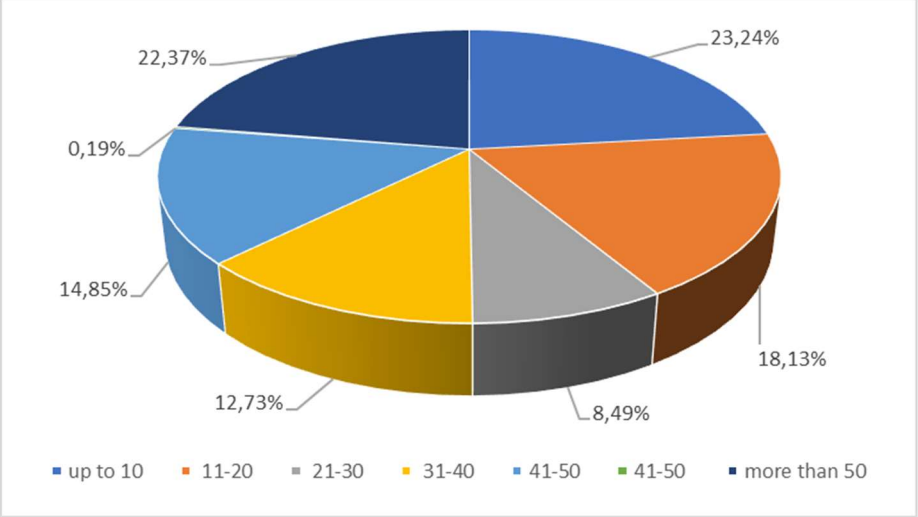

Figure 6. Flats purchased by senior buyers according to the age of the building in the years 2010-2016
Source: *Author's own work.*

The average age of buildings in which flats purchased by seniors was about 35 years. The average age of buildings was the lowest in the case of women buyers, followed by married couples. It was the highest for men. Seniors preferred to buy a flat in the oldest and youngest buildings. Almost every fourth flat purchased by a senior was located in newly developed buildings, while more than 22% in buildings built over than 50 years ago. As far as the height of buildings is concerned, almost two-thirds of flats bought by seniors were located in low buildings (up to five floors). Women tended to buy flats in high buildings more often than men and married couples. Moreover we analyzed the location of flats bought by seniors on the particular floor of a building. Senior people preferred flats located on the lowest floors. Almost two-thirds of the flats purchased by senior citizens were located on the ground floor. More than 22% of the flats bought by seniors were located on the first floor and slightly fewer, 22%, on the second floor. Flats located on the floors from the seventh to the 16th were the subjects of about 7% of transactions.

Table 1 presents the average price of 1 m^2 of a flat bought and the average transaction price according to a group of buyers.

Table 1. Average prices of flats purchased by buyers at the age of over 60 in the years 2010-2016

Type of buyer/ Price	Average transaction price (zloty)	Average price 1m^2 (zloty)
Married couples	262,345.80	5,369.08
Women	245,168.19	5,291.54
Men	254,263.49	5,112.52
Total	253,441.53	5,299.63

Source: *Author's own work.*

Among senior buyers, married couples purchased flats at the highest average price for 1 m^2 and the highest transaction price. This is probably due to the fact that it was that group that bought flats with larger floor space.

4. Conclusion

In the paper, we undertook to identify the revealed preferences of senior buyers in the housing market in Poznań. The analysis shows that it was women (almost 50%) and married couples (almost 41%) that accounted for the vast majority of senior buyers of second-hand flats in Poznań in the years 2010-2016. The biggest number of them were located in the districts of Nowe Miasto (about 34%) and Grunwald (almost 27%). Seniors favoured flats with the floor space of 30-60 m². When it comes to the construction technology, flats built in the traditional technology accounted for two-thirds of the total number of transactions. What is more, seniors tended to buy relatively new flats (up to 10 years old) or those located in the oldest buildings (over 50 years old). What is interesting, more than 90% of the transactions concluded by senior buyers in the period under study involved cash payments.

We should also compare here the results of the study of the declared preferences of this group of buyers conducted in 2012 in the market of Poznań (Strączkowski, 2013). According to the author, 60% of seniors could afford to buy a flat for cash. The analysis of transactions concluded in the years 2010-2016 shows that more than 90% of flats were purchased for cash. The interviewed real estate agents said that seniors preferred two-room flats (52% of the answers), while the overview of transactions shows that they account for only 28.5% (while 43% of the flats purchased were three-room flats and 17% - four-room ones). The comparison of agents' declarations and bought flats as regards their floor space also reveals some contradictions. Generally, flats purchased by senior citizens in the period under study were bigger than real estate agents declared. The above discrepancies may be the consequence of the selection of the period for analysis, but, to a large degree, they result from the adopted research methods. In this paper, we examined the revealed preferences of the whole population (all people in the age over 60 who bought dwellings in Poznań in years 2010-2016), while, in the quoted studies, the selection of the sample was non-random, purposive and involved interviews with 30 real estate agents.

However, given the limitations of the method of the revealed preference analysis, we are aware that further research is necessary. There is no doubt that a survey conducted among people who bought flats in the analysed period would provide interesting findings. The results of such a study would allow us to find out about the reasons behind their decisions.

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