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Housing conditions in selected metropolitan areas in Poland

Abstract

Housing conditions are considered an element reflecting the living standard of the population. In addition, it is also an important index illustrating advancement of suburbanisation processes. The article presents diversification of housing conditions in two selected metropolitan areas: Warsaw, Kraków and Potential Rzeszów Metropolitan Area. Two indexes are analysed in the paper: the number of persons per apartment and the average floor space of apartments, in two time periods:1995 and 2010. On the basis of the indexes, a typology of municipalities within the metropolitan areas was created with the housing conditions criterion. At the next stage, fluctuations in the population and in the number of apartments in the area were analysed as the element explaining the above-presented transformations.

Key words: housing; quality of life; metropolitan area; suburbanization

Introduction

The concept of housing conditions comprises a whole array of issues describing apartments, buildings and their surroundings. In the literature on the field, they are referred to as the residential environment (Suliborski, 1976). Housing conditions are an important index defining one of important dimensions in population's standard of living (Zborowski, 2005). It can be measured with various indexes. These could be: a typology of apartments (their floor space, number of rooms, and type of title), available technical infrastructure (including water, sewage and gas systems, the Internet) and various types of material goods (see: Płaziak, 2004a, 2004b). Indexes for housing conditions are considered the most measurable of all the indexes which may be used to describe spatial differentiation of the standard of living. This is particularly important when identifying differentiation in the standard of living in the city space, also for its specific zones (Kaltenberg-Kwiatkowska, 1982). Suburbanisation processes are reflected through differentiation of housing conditions. It is a decentralised process manifesting itself in redistribution of inhabitants, firms and institutions, etc. (Zborowski, Raźniak, 2013; Pytel, Sitek, 2006). By improving its material status, the middle class demonstrates a growing desire to own a house, which is often coupled with housing and environmental

issues in big cities (Kok, Kovacs, 1999; *Murator*, 2004). This results in settlement and social transformations of suburban areas, creating ever-widening circles around the central city (Raźniak, 2007, 2013; Kilar, 2009; Warych-Juras, Gałka, 2011; Gałka, Warych-Juras, 2011; Raźniak, Brzosko-Sermak, 2014).

The exact number of Polish metropolitan areas has not been agreed on yet. Typically, authors mention Warsaw, Kraków, Wrocław, Poznań and the TriCity (Gdańsk, Gdynia, Sopot) Metropolitan Areas (Tab. 1.), while some papers also mention Katowice (Upper Silesian) and Łódź Metropolitan Area (Zuzańska-Żyśko, 2012, Zuzańska-Żyśko, Szajnowska-Wysocka, 2013). In turn, the broadest delimitation was presented by the Union of Polish Metropolises (The Union of Polish Metropolises, 2008), defining as many as 12 such territorial units; however, their

Tab. 1. Polish metropolitan areas in terms of different sources:

City/Author	Unia Metropolii Polskich (2008)	Jałowiecki (2006)	Parysek (2003)	Ilnicki (2003)	Gorzelak, Jałowiecki Smętkowski (2009)	Węcławowicz i in. (2006)	Zborowski (2005)	Markowski, Marszał (red.), (2006)	METREX (2000)	ESPON (2002–2006)	Beaverstock, Smith, Taylor (1999)	Taylor, Catalano,Walker (2002)	Taylor, Aranyahttp://www.lboro.ac.uk/gawc/rb/rb192.html - ft00#ft00(2008)	Taylor i in. (2010)	Derudder i in. (2010)
Warszawa	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Kraków	M	M	M	M	M	M	M	M	M	M				m^p	
Łódź	M	M			**M**	**M**	m^p	**M**		M					
Wrocław	M	M	M	M	M	M	M	M	M	M					
Poznań	M	M	M	M	M	M	M	M	M	M					
Trójmiasto	M	M	M	M	M	M	M	M	M	M					
Szczecin	M					**M**	m^p	m^p	**M**	**M**					
Bydgoszcz/ Toruń	M					m^p		m^p							
Lublin	M					m^p	m^p	m^p							
Katowice	M				**M**	**M**	m^p	**M**	**M**	**M**					
Białystok	M					m^p	m^p	m^p							
Rzeszów	M							m^p							

M – metropolitan area, m^p – potential metropolitan area

Source: Raźniak, Winiarczyk-Raźniak, 2013

delimitation was not based on any functional indexes and, for this reason, it can be hardly considered trustworthy. Only Warsaw is mentioned as a city with strong international connections (Taylor, Aranya, 2008, Derudder et. al., 2010), while one may see an increasing importance of Kraków as a centre with foreign relations growing over the past few years. For the purpose of this paper, the most important city in Poland, Warsaw has been selected, together with Kraków, which is a city mentioned in many Polish studies, and Rzeszów, which does not have too many metropolitan functions (Tab. 1).

The aim of this paper is to analyse housing conditions in selected metropolitan areas, with indication of the differences reflecting the advancement of suburbanisation processes.

Differentiation of housing conditions in selected metropolitan areas

In this study, spatial differentiation of population density per apartment was analysed. To this end, the number of persons per apartment index was used. Spatial differentiation of the index in the selected metropolitan areas, per municipality, for 1995 and 2010, was analysed. A high value of the analysed index indicates unfavourable housing conditions in a metropolis. More people living together in an apartment are an indication of a lower standard of living. It also has an impact on the perceived quality of life in this aspect and influences its other aspects (Winiarczyk-Raźniak, 2004a, 2004b, 2008). The mean value of the index calculated for the analysed metropolitan areas for 1995 and 2010 shows that both in the initial and final research period, Warsaw Metropolitan Area had the most favourable conditions in this respect. It applies both to the averaged values for the whole metropolitan area (2.9 in 1995 and 2.3 in 2010, respectively) and when broken down into the central city and the metropolitan area (Tab. 2).

Tab. 2. Average values of indicators in metropolitan areas

	Number of persons per apartment		Average apartment size (m²)	
	1995	2010	1995	2010
Warsaw MA in total	2,9	2,3	52,6	66,4
city of Warsaw	2,7	2,1	48,7	58,0
MA	3,4	2,8	60,0	81,6
Kraków MA in total	3,4	2,7	59,1	70,4
city of Kraków	3,1	2,3	52,0	56,8
MA	3,9	3,3	69,7	91,2
Rzeszów MA in total	3,8	3,3	66,4	79,8
city of Rzeszów	3,3	2,8	55,6	65,7
MA	4,0	3,7	71,5	87,6

Source: own compilation based on GUS data

In consequence, Warsaw reported the fewest persons per apartment – 2.1 in 2010. A slightly higher mean value was reported for Kraków Metropolitan Area (on average, the value reached 3.4 and 2.7 person/apartment for the entire metropolitan region in the analysed years) and, also in this case, the central city ranked considerably lower than its surrounding area. In this respect, the Potential Rzeszów Metropolitan Area had the most difficult conditions with 3.8 people per apartment in 1995 and 3.3 people per apartment in 2010. As in case of the above-discussed areas, also in this area one can see a difference between the central city and the metropolitan area (or a potential metropolitan area, as in this case). In all three cases, there was a a drop of the mean values of the discussed ratio reported in 2010. It indicates an improvement in the living standard in this respect in most municipalities in the discussed metropolitan areas. The biggest differences in terms of mean values of the number of persons per apartment in the years discussed in the paper were reported in Kraków Metropolitan Area while the Potential Rzeszów Metropolitan Area showed the lowest improvement of all three areas.

In addition, one may see a spatial regularity, indicating the areas charac-terised by a relatively most difficult housing conditions as reflected by the analysed index. Both in 1995 and 2010, the highest indexes were reported in north-eastern Warsaw Metropolitan Area (Wyszków and Wołomin County; Fig. 1). As in the case of Kraków Metropolitan Area, a drop in the analysed index was reported. In 1995, a relatively high average number of persons per apartment was recorded for municipalities located predominantly in the southern part of the metropolitan area. 15 years later, the situation improved considerably – the highest values were reported solely for municipalities in the southern outskirts of Kraków Metropolitan Area (Tokarnia, Pcim and Lubień). However, the highest mean values of the indexes were reported for the Potential Rzeszów Metropolitan Area, although, also in this case, a drop from 4.0 to 3.7 person/apartment was reported. In 1995, nearly all municipalities forming the Area were classified to the range with the highest value of the index. In the second analysed period, the condition improved in the majority of municipalities; however, a drop in the index was not particularly significant. Generally speaking, from 1995 to 2010, nearly all municipalities in the metropolitan areas covered by the analysis reported a decrease in the persons per apartment index. A minimum increase was reported in two municipalities forming a part of Warsaw Metropolitan Area while only one municipality of the Potential Rzeszów Metropolitan Area showed stagnation in this respect.

Floor space of apartments is an important criterion to define a standard of an apartment, which is directly related to the standard of living (Winiarczyk-Raźniak, 2008; Zborowski, 2005). Its importance comes from potentially negative consequences for a family and its functioning, a development of an individual and may affect the entire society (Jałowiecki, Szczepański, 2002). This study analysed spatial differentiation of the average size of apartments in municipalities of the three metropolitan areas. The index was the best in the Potential Rzeszów Metropolitan Area both in 1995 and 2010 (66.4 and 79.6 m^2, respectively, Tab. 2)

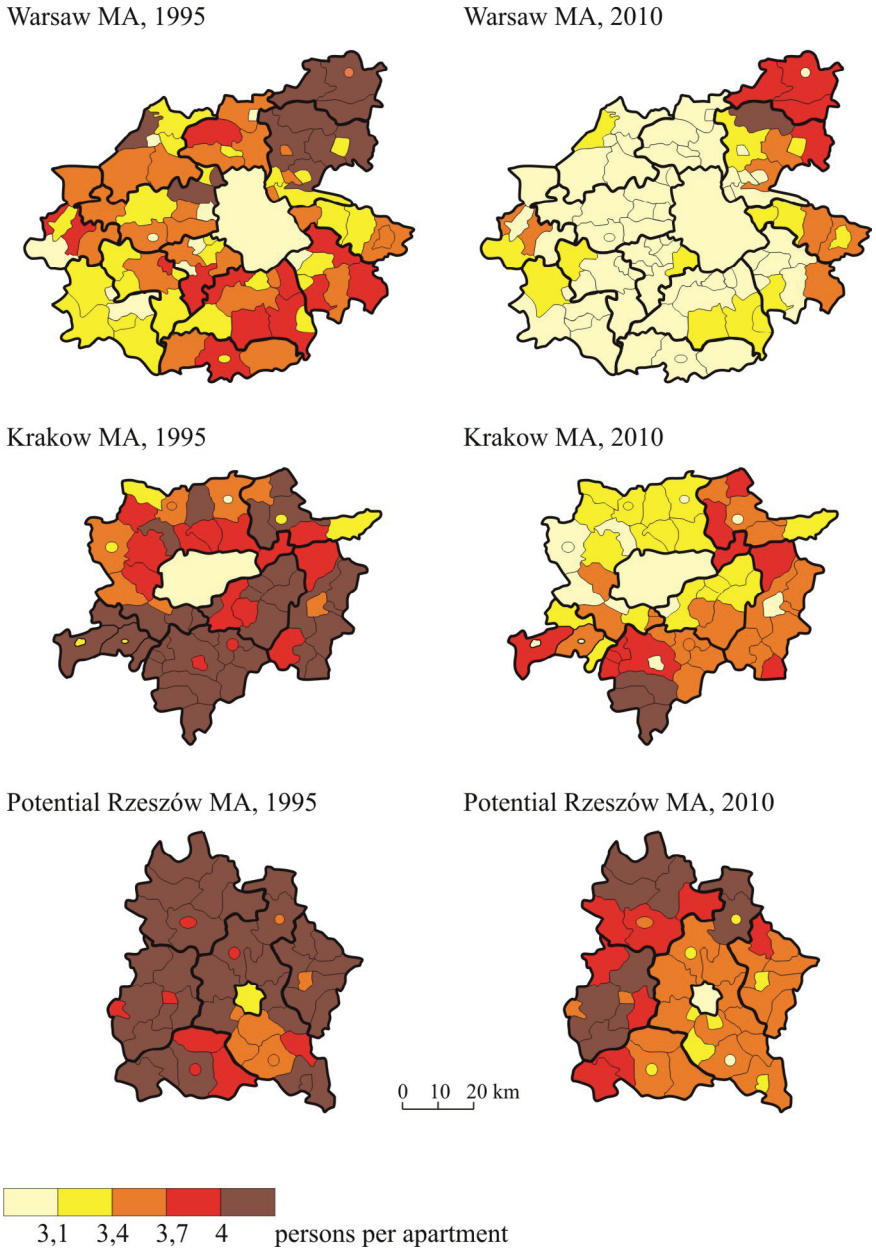

Fig. 1. Number of people in one apartment in selected metropolitan areas in Poland in 1995 and 2010

Source: own compilation based on GUS data

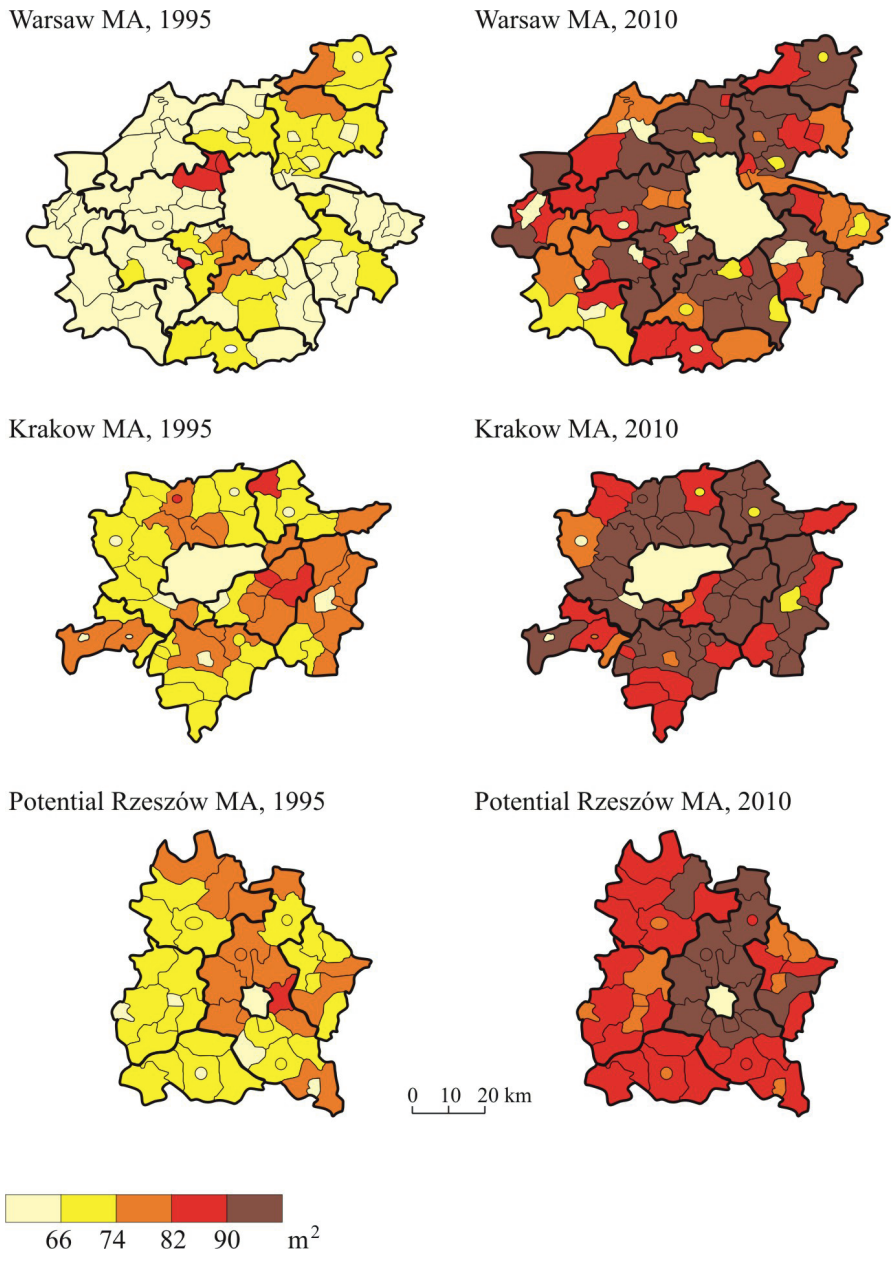

Fig. 2. The average size of an apartment in selected metropolitan areas in Poland in 1995 and 2010

Source: own compilation based on GUS data

in terms of its value averaged for the entire areas. Still, it may have been affected by large administrative inclusions into the central city, resulting from an increase in the number of detached/single family housing, which improved the means analysed in the study. Warsaw Metropolitan Area proved the least favourable for living when measured with the index. In the analysed period, apartments with the smallest floor space were characteristic for central cities and for Warsaw in particular (as small as 49 m^2 in 1995 and 58 m^2 in 2010). As regards the mean value of the index for the entire metropolitan areas, the highest growth in the floor space of apartments was reported for Warsaw Metropolitan Area and the lowest one for Kraków Metropolitan Area; however, when broken down into values for central cities and other areas, the highest growth was characteristic for the areas in the zones surrounding the main cities (a growth in excess of 21 m^2).

In the spatial distribution of the index for Warsaw Metropolitan Area some specific features are visible, which show differences between the two analysed periods (Fig. 2). In 1995, among relatively low mean values of the index, a group of municipalities showing slightly better conditions in this respect could be found. These municipalities form corridors of radial lines from the main roads leading from the central city to the outskirts of the metropolitan area. In turn, in 2010, the highest value of the index was reported in municipalities surrounding the central city. They formed clusters of municipalities directly neighbouring Warsaw (with small exceptions) and subsequent rings, partially related to corridors formed in the previous research period. Similar spatial dependencies were also observed in Kraków Metropolitan Area. In Kraków Metropolitan Area, both in 1995, which saw the radial lines of corridors formed by municipalities demonstrating higher values of the index, and in 2010, one could see clusters of municipalities indicating the most favourable housing conditions in the discussed aspect. However, in this case, the clusters form a more compact area, which is more uniform in terms of the value of the index. Towns neighbouring on Kraków form an exception here, as the mean floor space of apartments both in 1995 and 2010 was lower than in other municipalities of the area.

Types of municipalities in analysed metropolitan areas

At the next stage of the research, typology of municipalities was created in terms of their housing conditions (based on the above-analysed indexes). To this end, four types of municipalities were selected by their indexes both for 1995 and 2010. The most negative type of municipality is type 1, attributed to municipalities having small floor space of apartments (<75 m^2) combined with a high number of persons living in these apartments (>3.5 person/apartment). Next come types fitting between these two extreme categories: type 2 – small floor space of apartments (<75 m^2) with a small number of persons living in an apartment (<3.5 person) and type 3 – large floor space of apartments (>75 m^2) and many persons living in an

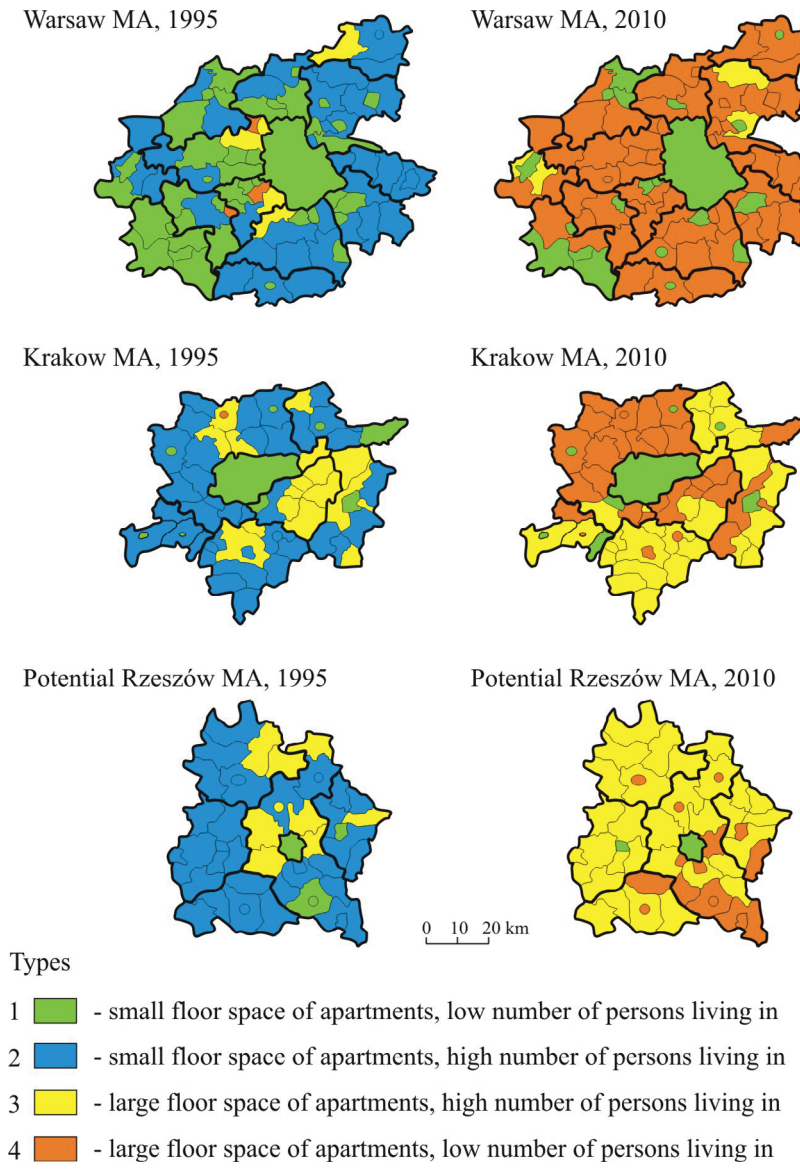

Fig. 3. Types of municipalities in selected metropolitan areas in Poland in 1995 and 2010

Source: own compilation based on GUS data

apartment (>3.5 person). Type 4 is the most positive one, with apartments having the largest floor space (>75 m^2) and the fewest number of inhabitants (<3.5 person). Spatial distribution of the above-mentioned types of housing conditions is presented in Fig. 3. In case of all three analysed metropolitan areas, differences between 1995 and 2010 can be observed. The first analysed period shows prevalence of type 2, which is the least favourable from the point of view of the standard of living.

Dominance of this type of municipalities was reported in all discussed metropolitan areas. Another characteristic feature is that type 1 – small floor space combined with high number of inhabitants – occurs in central cities. In 1995, the type could be found in some municipal communes typically located in Warsaw and Kraków Metropolitan Area as well as in some other municipalities in Warsaw Metropolitan Area. In this period, the most favourable type was represented in three municipalities only, all of them in the vicinity of Warsaw (Pruszków, Łomianki and Podkowa Leśna) and in a municipal commune which formed a part of Kraków Metropolitan Area, i.e. Skała (a rather unusual town with dominant rural type of development).

Things were very different in 2001 both in terms of the dominant types of housing conditions and in terms of differences among the 3 analysed metropolitan areas. Both central cities and the majority of municipal communes in the discussed metropolitan areas remained classified to type 2 i.e. unchanged since 1995 (characterised by a small floor space of apartments and relatively few inhabitants). Such condition is characteristic for cities in general, as non-availability of free space and high construction costs consequent upon expensive building plots, limit floor spaces of residential buildings and apartments in multi-family buildings. In addition, urban lifestyle characteristic for city communities reduces the number of persons in a household, with typically one or two generations living together (and, even in such case, there would be typically not more than one or two children). As a result of the above, city apartments have very few inhabitants. As for other municipalities, in general, types 3 and 4 clearly prevail but for different reasons in each metropolitan area. In case of Warsaw Metropolitan Area, only three municipalities have been classified to type 3, with relatively spacious apartments having relatively many inhabitants. These are municipalities which advanced from the type 1, so one could say that the housing conditions have improved to a relatively numerous households thanks to larger floor space of their apartments. However, type 4, which is the most positive type, is the most frequently reported in this area. The above indicates that the majority of municipalities in this area have a relatively large size of apartments which do not have excessive number of inhabitants. This is a characteristic feature of areas undergoing suburbanisation processes. Thanks to their increasing income, inhabitants of big cities move to suburban areas which offer apartments having larger floor space. Furthermore, households in these apartments continue to have few members only, as migrations to suburban areas comes with a partial transfer of consumer preferences and behaviour patterns (Szymańska, 2011, 2012) correlated with these preferences as well as a lifestyle which, in this aspect, is connected with families having only a few members. This could be a suburbanisation process (in the analysed housing dimension) occurring in the majority of municipalities in the discussed metropolitan area, located not only in the direct vicinity of the central city but also at a larger distance from the city.

In turn, Kraków Metropolitan Area municipalities clearly divide into two parts: the north-western part, together with municipalities directly neighbouring on Kraków, and the remaining area. The first group of municipalities are areas

experiencing intensive suburbanisation processes, obviously with type 4 prevailing. Over the period discussed in this paper, the area advanced from the type 1, having apartments with smaller floor space but more household members (more likely belonging to several generations, more children). The majority of other municipalities was classified to the type 3, with relatively large apartments used by households having relatively many members (with the traditional family model preserved in this case). In terms of housing conditions, the Potential Rzeszów Metropolitan Area had different characteristics in 2010. Analysing the housing conditions in the area, one may say that the Area does not experience any advanced suburbanisation processes. The vast majority of the area, including municipalities directly neighbouring on the central city, has been classified to type 3, which indicates that families with more members of their household remain a characteristic feature of the area. However, an improvement in the living standard i. e. the average floor space of apartments was reported. In the majority of rural municipalities, a shift from type 1 to type 3 was observed, which indicates an increase in the average floor space of apartments and continued higher number of family members in a household. In the southern part of the area, there are municipalities classified to type 4 in 2010; however, not as a result of suburbanisation. Characteristically, cities in this potential metropolitan area have also been classified to the best type (except for Rzeszów and Dębica), in contrast to the two areas discussed above.

Changes in the number of apartments and population, 1995–2010

To explain the phenomena, cartograms presenting the growth in the number of apartments and population between 19952010 were used. In the analysed period, the majority of municipalities in Warsaw Metropolitan Area (including the central city) reported a growth in the number of apartments. A particularly high growth was reported for municipalities surrounding the central city, going down when moving towards the borders of the area (Fig. 4). In addition, a population growth was reported in the analysed area; however, not as distinctive as in the case of the growth in the number of apartments. The highest values, resulting from growing population, were shown for municipalities in the direct vicinity of Warsaw, in particular in the south-western part of the area. This area stretches towards the city of Łódź, so these could be processes leading to the merge of the two metropolitan areas: Warsaw and Łódź MA. In addition, Warsaw Metropolitan Area had some municipalities with decreasing population in the analysed period. However, these municipalities were located on the outskirts of the analysed area.

Similar trends related to changes in the number of apartments emerged also in Kraków Metropolitan Area, but at a slightly smaller scale. In addition, there is a phenomenon of deteriorating number of apartments reported for two municipalities in north-eastern part of the area. In Kraków Metropolitan Area, one can see a compact group of municipalities experiencing a decrease of their population from 1995 to 2010. These are municipalities in Proszowice County, which is, in

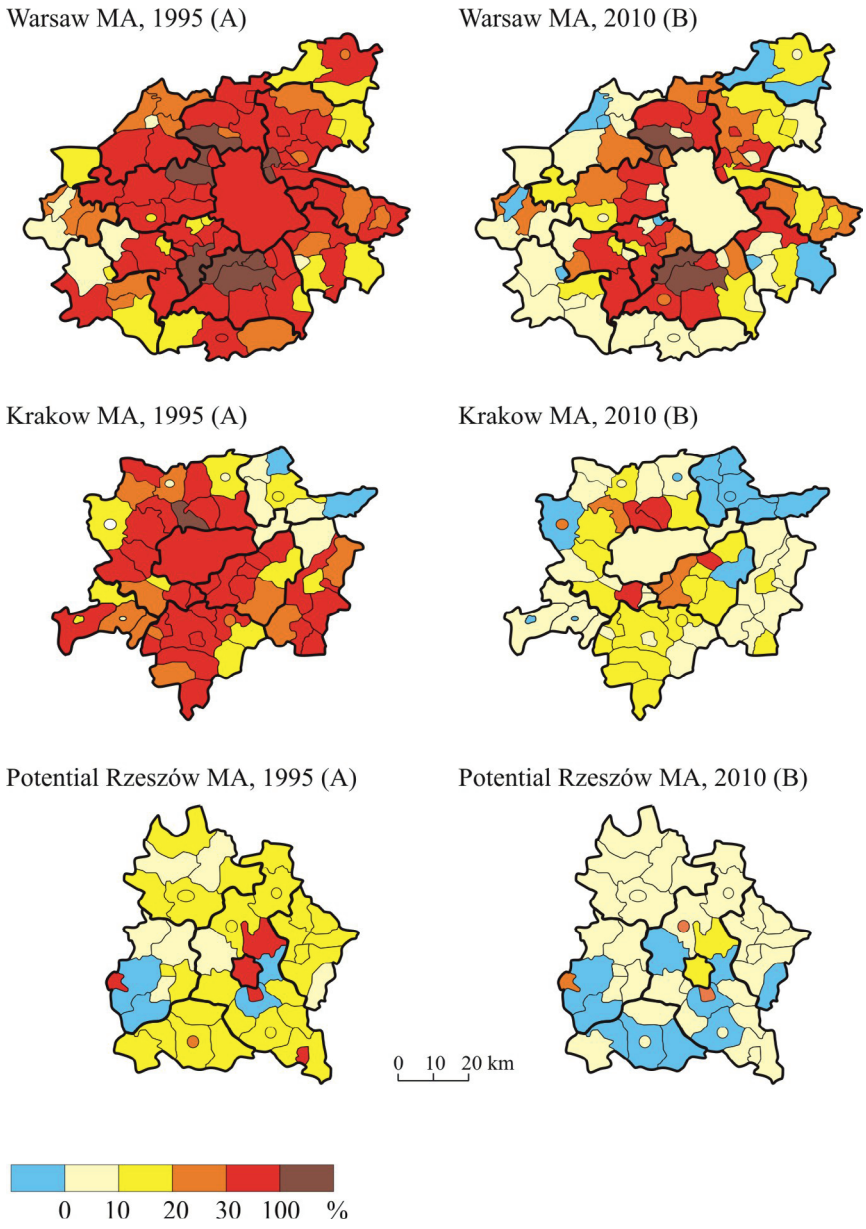

Fig. 4. The growth rate of the number of apartments (A) and population (B) in selected metropolitan areas in Poland in 1995 and 2010

Source: own compilation based on GUS data

relative terms, the poorest developed area dominated by farms. In contrast, weak positive rate of growth of the number of apartments and the loss of population

in rural community of Krzeszowice result in the inclusion of parts of rural areas to the Krzeszowice city, which resulted in reduction in the number of dwellings and population in rural area. In turn, a considerable growth of population was seen in municipalities adjacent to Kraków from north and south the process of suburbanization was the earliest (Gałka, Warych-Juras, 2011) The Potential Rzeszów Metropolitan Area had the most difficult situation in terms of changes in the number of apartments and population. Municipalities in this area demonstrated relatively small changes, with some reporting a decrease in the number of apartments (including two municipalities directly neighbouring Rzeszów). As in the case of municipalities, also in Krzeszowice the fall in the number of apartments and population in the municipalities surrounding Rzeszów was a result of the inclusion of parts of rural areas to the city of Rzeszów. Even lower growths were reported for the population, with 10 cases of negative growth.

Concluding remarks

The analyses discussed in the study lead to the conclusion that each metropolitan area discussed in the paper is at a different stage of advancement in terms of suburbanisation processes, measured by living conditions over the period indicated in the research. The most advanced processes, related to increasing the floor space of apartments and a deteriorating number of household members, is characteristic for Warsaw Metropolitan Area. The situation of Kraków Metropolitan Area may be slightly more difficult in this respect; however, in this case, index fluctuations are relatively high, demonstrating intensity of this phenomenon. The last of the areas discussed in the paper was the Potential Rzeszów Metropolitan Area, where no significant transformations were reported that would indicate any advancement of the suburbanisation process. In addition, there were considerable differences in the value of the analysed indexes for central cities. This is characteristic for big cities, having apartments relatively small in terms of size and populated by families tending to have few members.

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