DOI:10.17951/h.2020.54.2.67-76

ANNALES
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA

VOL. LIV, 2 SECTIO H 2020

AGNIESZKA NAPIÓRKOWSKA-BARYŁA

agnieszka.baryla@uwm.edu.pl
University of Warmia and Mazury. Faculty of Economic Sciences
4 Oczapowskiego St.,10-719 Olsztyn
ORCID ID: http://orcid.org/0000-0003-0434-1657

Housing Resources in Poland – an Assessment Made in Terms of the Quality of Life

Keywords: quality of housing resources; Perkal's index; quality of life

JEL: O18; R00; R31

How to quote this paper: Napiórkowska-Baryła, A. (2020). Housing Resources in Poland– an Assessment Made in Terms of the Quality of Life. *Annales Universitatis Mariae Curie-Skłodowska, sectio H—Oeconomia*, Vol. 54, No. 2.

Abstract

Having a home has been cited as a principal good, both in economic and social terms. It plays a key role in human life. Having a home often determines other decisions, such as getting married, starting a family, and changing jobs. Research papers dealing with the question of home ownership or tenancy, as well as various publications issued by the government and non-government organisations, emphasise the problem of a housing deficit. However, the question of the quality of housing resources is raised less often. Living conditions are one of the research areas investigated in studies concerning the quality of life. The purpose of this article is to assess the quality of Poland's housing resources at the regional level, using data from 2003 and 2016 and aided by Perkal's synthetic indicator. According to this indicator, the Mazowieckie Voivodeship had the highest value (0.849), and the Warmińsko-Mazurskie Voivodeship the lowest one (-0.722).

Introduction

Home plays a key role in human life. It is identified as one of the basic economic and social goods. Having a home often determines other decisions, such as starting a family and having children. In addition, having adequate living quarters affects activity and spatial mobility in the labour market. The descriptor "adequate" corresponds to a combination of qualitative and quantitative features available at an acceptable price for a house or flat. Living conditions are among the objective determinants taken into consideration in studies on the quality of life – those covering the whole EU and those that pertain to individual states or their regions. The purpose of this article is to assess the quality of housing resources in Poland, using a regional approach. This analysis uses Perkal's synthetic index because it is characterised by transparency and, even more importantly, it loses very little information during the aggregation of data. The index is the sum of standardised values of partial indices (Czyż & Chojnicki, 1991; Sobala-Gwosdz, 2004). This paper uses data on the partial indices from the Local Data Bank of the Polish Central Statistical Office (*Główny Urząd Statystyczny*) for 2003 and 2016. The data included such parameters as the average floor space of a flat or house, the number of rooms in a flat or house, floor space per person, access to plumbing (waterworks and sewers), major repairs completed, housing-related bills, and ongoing eviction cases. The synthetic index allows us to rank all Polish Voivodeships according to the quality of the housing resources they contain and to identify changes between the analysed years.

Housing conditions in studies on the level and quality of life

The earliest interest in the concept of the quality of life occurred in classical antiquity. Hippocrates and Aristotle, for example, tried to identify the foundation of a happy, satisfying life in terms of medicine and philosophy. The idea of the quality of life was not alien to the Christian and Eastern philosophers (Trzebiatowski, 2011). More recently, for several reasons, the quality of life began to attract attention in the 1950s. Initially, the concept was viewed quantitatively. This was reflected in research that investigated the degree of satisfaction of needs expressed by individuals and groups. The concept of the quality of life stimulates interest among representatives of various scientific disciplines: pedagogy, psychology, economics, sociology, and medicine. This means that various views can complement one another and ensure a broad interdisciplinary perspective. However, it also gives rise to various approaches to notions that render its operationalisation incoherent (Petelewicz & Drabowicz, 2016). Operational definitions of the quality of life are varied, and this variability is fuelled not only by the use of societal or individualistic perspectives but also by a great range of theoretical models or academic orientations. Many articles on the subject of the quality of life have commented on this diversity. Liu (1976) states

that there were as many definitions of the quality of life as there are people, thus, emphasising the axiom that individuals differ in what they find important. Baker and Intagliata (1982) indicate that there are as many definitions as there are people studying the phenomenon, a comment that sheds light on the lack of agreement between researchers who attempt to operationalise the concept. In their view, little has been done to achieve consistent definitions (Felce & Perry, 1995). Irrespective of how this notion is understood, the most essential term is "optimal quality". The definition proposed by the World Health Organization Quality of Life (WHOQOL) can bring into agreement at least some of the researchers in this field, who originate from different disciplines, even though the definition was constructed in the context of public health. The WHO defines the quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. It is a broad ranging concept, affected in a complex way by a person's physical health, psychological state, personal beliefs, social relationships, and relationships to salient features of their environment (WHOQOL, 1995).

Interest in the quality of life was rooted in the belief that a quantitative increase (measured according to the Gross Domestic Product) was not a value in itself, but that further development beyond a certain threshold is not possible unless a qualitative change occurs. Czapiński (2002) claims that no empirical evidence has been provided to prove that economic growth in developed countries has a direct influence on the improvement of social development parameters and the subjective sense of well-being. Since the 1970s, researchers have tried to identify societal indicators that would be both analogous and contrary to GDP, but which would enable them to monitor the social consequences of modernisation and economic change. An example of such an indicator is the Human Development Index (HDI), developed in 1990 by Mahbub ul Haq. This synthetic measure of changes in the social and economic development of particular countries takes into account average longevity, illiteracy, level of education, and standard of living measured by GDP. McGregor and Pouw (2017) in addition to material (economic) and social (relational) dimensions, identify a third dimension of the quality of life that can be assessed. This is the subjective (individual) perception of the quality of life. According to Rokicka (2014), the relevant literature follows three currents in studies on the measure of the quality of life:

– economic welfare,
– socio-economic welfare,
– socio-economic welfare and subjective well-being.

"Objective" definitions of the quality of life use criteria adopted in advance and are identical for all cases. In those definitions, the quality of life is an aggregate of conditions in which one lives; objective attributes of the world of nature, artefacts and culture; objectively assessed attributes of a person connected with one's standard of living and social status, and the proper functioning of one's body (Sęk, 1993). However, a multi-dimensional approach to the quality of life is becoming more fre-

quent. Wejnert (2001, p. 48) reports that American researchers, having performed cohort studies, have concluded that the subjective assessment of the quality of life contains an analysis of 823 factors that reflect various aspects of one's life situation. Further investigations enabled them to distinguish 30 groups of interconnected life problems. Cummins (1996) analysed 27 definitions of the quality of life which were enumerative in character and concluded that most comprised 5 dimensions: emotional well-being (85%), health (70%), family and social relations (70%), material welfare (59%), and professional work or other forms of activity (56%). Moreover, numerous studies confirm that those five areas are considered the most significant by respondents. During his further analyses, the cited researcher added two more aspects: the feeling of being secure (safety) and being able to function in society (community). Andrews and Inglehart (1979) stated that four spheres of life are essential for the global evaluation of the quality of life among members of a given society: occupation, family, housing, and income. These are the dimensions which most significantly affect the situation of respondents (Petelewicz & Drabowicz, 2016). The authors of a study under the framework of the Social Diagnosis, conducted cyclically since 2000, have identified eight dimensions of the general quality of life. These are the level of civilisation development, material welfare, social well-being, physical and mental well-being, the number of pathological events, the level of stress, and social capital (Czapiński & Panek, 2015).

Above all, it is worth paying attention to the principal objective conditions underlying the quality of life, such as economic conditions, leisure time, social security, housing conditions, the person's natural environment, health, and social environment (Skrzypek, 2001).

The quality of housing resources in Poland's voivodeships

The studies cited above mention housing conditions as one area that has an objective influence on the quality of life. There is no research on the specific contribution of housing conditions to overall satisfaction, but by using the theory of needs developed by Maslow one can presume that having an adequate flat or house is one of the basic needs. When reviewing the theory of human needs, Szelągowska (2011, p. 38) concludes that "much of the needs felt by a society arise from the wish to satisfy the need for housing". A flat or a house is the most important element of the household's material possessions, and its condition and furnishings testify to the family's material status, level of income, and wealth. Home is a place where the whole family perform their roles, where family members are close, and where they experience various processes. All purposes for which a household is created are pursued at home, sometimes including business activity. Having a suitable home, one which adequately responds to these requirements, enables a household to satisfy its needs more extensively and to gather durable consumer goods, which are part of the family's wealth.

The housing standard in terms of actual housing conditions includes the size of the flat, equipment (in infrastructure and technical equipment) and finishing of flats and buildings, as well as the manner of development of residential areas, and the availability of services and recreational facilities (Bryx, 2001). The average area of a flat in Poland is 75.2 m^2; in the EU countries – 95.9 m^2. One of the main measures applied in assessing the quality of housing is having sufficient space in a flat or house. The overcrowding indicator specifies the percentage of persons occupying overcrowded homes, taking into account the number of rooms available, the size of a household, and the age of family members and their family situation. The living quarters that meet the European standard are houses or flats in which there is at least one room (e.g. a living room, a sitting room, or a dining room) for a family and one room for a couple that makes a household, one room for every single adult person, one room for two children of the same sex aged 12 to 17 years, one room for a person aged 12 to 17 years if not included in any of the above categories, and one room for two children aged less than 12 years (Łaszek, Olszewski, & Waszczuk, 2017). In 2015, about 16.7% of the EU population lived in overcrowded homes. The EU member states with the highest overcrowding indices were Romania (49.7%) and Poland (43.4%). Outside the EU, the highest overcrowding occurs in Serbia (53.4%), Macedonia (51.15%), and Turkey (45.9%). The lowest figures were recorded in Cyprus (1.4%), Belgium (1.6%), the Netherlands (3.3%), Ireland (3.4%), and Malta (3.5%). The housing situation in a country is also determined by the rate of housing deprivation, which is the percentage of residents, in addition to the issue of overcrowded housing, that struggle with poor technical conditions of the premises, such as the lack of a toilet, shower or bathtub; leaking roof; insufficient lighting, or humidity. In Poland, this indicator was 9.4%; in Romania – 19.8%, in Latvia – 14.6%, but in EU countries overall – 4.8% (Eurostat, 2016).

To verify the quality of housing resources in Poland's voivodeships, a multi-dimensional comparative analysis was performed, where Perkal's synthetic index, which is a function of several variables, was calculated. In that study, the quality of housing resources is taken as a suitable standard of living, expressed by floor space together with facilities (e.g. plumbing) and whether technical conditions are adequate. To explore this problem, the following set of factors was applied: x_1 – number of flats per 1,000 persons, x_2 – average usable floor area of a flat, x_3 – average usable floor area per person, x_4 – average number of occupants per flat, x_5 – average number of rooms in a flat, x_6 – number of persons per room, x_7 – plumbing, x_8 – piped gas, x_9 – number of flats which have undergone major repairs (roof, woodwork, fixtures), x_{10} – number of flats which have been insulated, x_{11} – number of flats with due tenant bills, x_{12} – number of flats submitted to an eviction procedure. Estimating the synthetic indicator of the quality of housing resources comprises two steps (Karmowska, 2011):

1) normalising individual measures used in the study, to make all measures comparable and summable, and

2) calculating the synthetic indicators (W_1) of the quality of housing resources using the following formula:

$$W_i = \frac{\sum_{j=1}^{n} t_{ij}}{m} \quad (1)$$

where:
t_{ij} is the standardised value of an observation in the i^{th} case and j^{th} variable, and
m is the number of characteristics included in the analysis.

Standardisation followed this formula:

$$t_{ij} = \frac{x_{ij} - x_{j\acute{s}r}}{S_j} \text{ for } i = 1, 2,\ldots,n; j = 1, 2,\ldots,m \quad (2)$$

where:
x_{ij} is the raw value of the i^{th} case of the j^{th} variable $x_{j\acute{s}r}$,
S_j is the values of the arithmetic mean and standard deviation of the j^{th} variable.

Perkal's index can assume values from -3 to 3. Regions with a high quality of housing resources score above 0, regions with a low quality of housing resources score below 0. Voivodeships with an intermediate level of the quality of housing score near 0. Table 1 and Figure 1 show the values of this index calculated for Polish voivodeships in 2003 and 2016.

Table 1. Scores on Perkal's index for the quality of housing resources in Polish voivodeships

Voivodeships	2003	2016
Dolnośląskie	0.115	0.401
Kujawsko-pomorskie	-0.479	-0.561
Lubelskie	-0.122	-0.104
Lubuskie	-0.208	-0.110
Łódzkie	0.184	0.102
Małopolskie	0.023	-0.133
Mazowieckie	0.799	0.849
Opolskie	0.217	0.283
Podkarpackie	-0.321	-0.281
Podlaskie	0.410	0.371
Pomorskie	-0.221	-0.261
Śląskie	0.651	0.654
Świętokrzyskie	-0.356	-0.405
Warmińsko-mazurskie	-0.630	-0.722
Wielkopolskie	0.146	0.133
Zachodniopomorskie	-0.210	-0.216

Source: Author's own study based on data from the Local Data Bank.

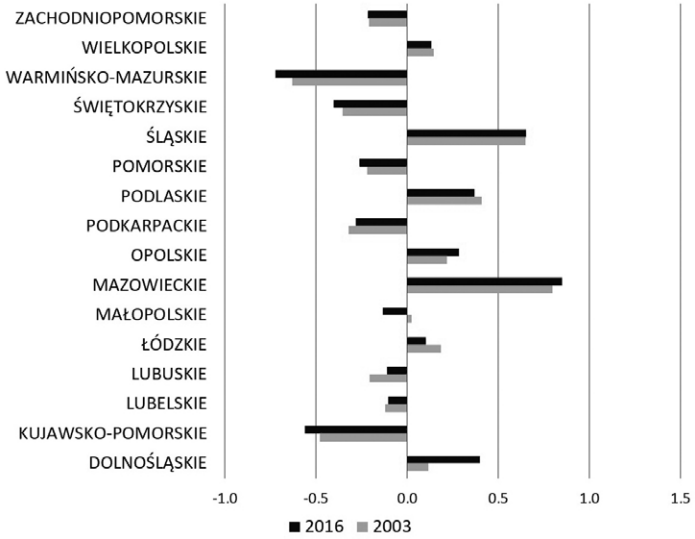

Figure 1. Quality of housing resources

Source: Author's own study based on data from the Local Data Bank.

Based on the above formulas, seven provinces were positive in the index (Figure 1). The voivodeships with the highest values, which continued to increase over the years, were Mazowieckie (0.849), Śląskie (0.654), Dolnośląskie (0.401), and Opolskie (0.283). The Voivodeships where the values were positive but lower in 2016 than in 2003, were Podlaskie, Wielkopolskie, Łódzkie, and Małopolskie. The voivodeships with the lowest values – and where they were lower in 2016 than in 2003 – were Warmińsko-Mazurskie (-0.722 in 2016), Kujawsko-Pomorskie (-0.561), Świętokrzyskie (-0.405), Pomorskie (-0.261), and Zachodniopomorskie (-0.216). In the Lubuskie and Lubelskie Voivodeships, the values of Perkal's index are negative but show improvement between 2003 and 2016. The strongest impact on these scores came from the size of living quarters, i.e. number of flats per 1,000 inhabitants and the number of persons per flat. Moreover, the results for 2003 were affected considerably by ongoing evictions, while the scores in 2016 were strongly influenced by the thermal insulation of residential buildings. Over the time period analysed, the facilities in the flats and houses strongly affected the values of the synthetic index. According to Mach (2015), the Mazowieckie Voivodeship was the best, whereas the Warmińsko-Mazurskie Voivodeship was the poorest in terms of the infrastructure available in housing resources, a finding which was confirmed by this study. The Polish provinces were classified according to their scores on Perkal's index. The categories were based on the arithmetic mean and standard deviation in that indicator (Malina, 2004, p. 76) (Figure 2).

$W_i \in \langle 0.401;\ max\rangle$ – class I – very high quality of housing resources,
$W_i \in \langle 0;\ 0.401)$ – class II – high quality of housing resources,
$W_i \in \langle -0.401;\ 0)$ – class III – medium quality of housing resources,
$W_i \in \langle min;\ -0.401)$ – class IV – low quality of housing resources.

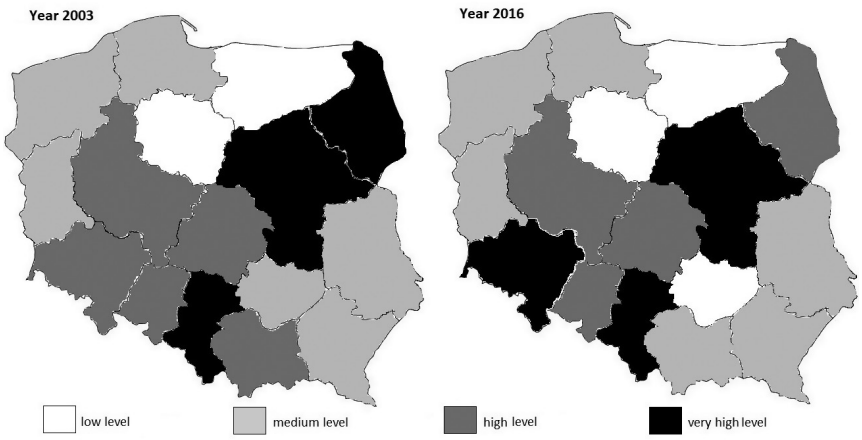

Figure 2. Spatial delimitation of the quality classes of housing resources in Poland in 2003 and 2016

Source: Author's own study based on data from Figure 1.

In most of the provinces, there was little evidence of the development of housing resources and the improvement of their quality. In several provinces, the tendency was just the opposite, namely Perkal's index was higher in 2003 than in 2016. This is particularly worrying, as it coincides with growing macroeconomic and social indicators that prove that the country is developing and that the quality of life and the pressure on improving the energy efficiency of buildings are growing. However, improvement in specific measures had a significant effect on the results (cf. Napyurkovska-Baryla, 2017). Many times, the results for the quality of housing resources reported in this paper do not correspond to the data in Social Diagnosis (*Diagnoza społeczna*), edited by Czapiński and Panek (2015), where the quality of life was evaluated in the Polish voivodeships. The provinces diagnosed as having the highest general quality of life in 2015 were Małopolskie, Pomorskie and Wielkopolskie, whereas the ones with the lowest quality of life were Świętokrzyskie, Łódzkie, and Zachodniopomorskie. The Warmińsko-Mazurskie Voivodeship, which has the lowest quality housing resources in this study, was classified in fifth place in 2015 regarding the quality of life. This would suggest that the quality of housing has only a slight influence on the general quality of life, particularly because 55.3% of the respondents reported that they were satisfied or very satisfied with their housing standard. For

comparison, in 1991, the percentage of such answers was 9.8 pp lower (Czapiński & Panek, 2015). More similarities can be observed when the quality of housing is compared with the level of socio-economic development of the provinces, reported, for example, by Gorzelak and Jałowiecki (2000), Rokicka (2014), Miłek and Paluch (2016), and Kowalewska (2015).

Conclusions

Housing resources – their technical conditions and usability – are one of the areas that make up the objective quality of life. The above study shows that the quality of the housing stock in Poland is highly varied from region to region. The highest score on Perkal's index was achieved in the Mazowieckie Voivodeship in 2016 (0.849), while the lowest one was calculated for the same year in the Warmińsko-Mazurskie Voivodeship (-0.722). The factors with the greatest effect on the calculated values of the synthetic index were the number of flats per 1,000 inhabitants and the number of persons per flat. These factors show the overcrowding of homes and deprivation or severe deprivation regarding housing. Other factors that influenced the quality of housing were ongoing eviction procedures, the installation of insulation, and the supply of facilities. No greater discrepancies were observed between the provinces with the high quality of housing resources and quality of life. Quality of life is measured in many areas and on many planes, hence the lack of distinct correlations. This, however, does not mean that the housing standard does not affect the quality of life. On the contrary, having a roof over one's head is one of the basic needs in a person's life. The widespread desire to own a flat or a house adequate to one's household demands is crucial throughout life.

References

Andrews, F.M., & Inglehart, R.F. (1979). The structure of subjective well-being in nine western societies. *Social Indicators Research*, *6*(1), 73–90. Retrieved from http://hdl.handle.net/2027.42/43699

Baker, F., & Intagliata, J. (1982). Quality of life in the evaluation of community support systems. *Evaluation and Program Planning* 5, 69–79.

Bryx, M. (2001). *Finansowanie inwestycji mieszkaniowych*. Warszawa: Poltext.

Cummins, R. (1996). The domains of life satisfaction. An attempt to order chaos. *Social Indicators Research*, *38*, 303–328.

Czapiński, J. (2002). Szczęśliwy człowiek w szczęśliwym społeczeństwie? Zrównoważony rozwój, jakość życia i złudzenie postępu. *Psychologia Jakości Życia*, *1*, 9–34.

Czapiński, J., & Panek, T. (2015). Główne wyniki i wnioski. Diagnoza Społeczna 2015. Warunki i jakość życia Polaków – Raport. *Contemporary Economics*, *9*(4), 16–24. **doi:10.5709/ce.1897-9254.177**

Czyż, T., & Chojnicki, Z. (1991). Struktura poziomu życia w systemie regionalnym Polski. In Z. Chojnicki, T. Czyż (red.), *Zróżnicowanie przestrzenne poziomu i warunków życia ludności*. Biuletyn KPZK PAN, Warszawa, 153, 7–46.

Eurostat. (2016). Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Housing_statistics/pl

Felce, D., & Perry, J. (1995). Quality of life: Its definition and measurement. *Research in Developmental Disabilities*, *16*(1), 51–74.

Gorzelak, G., & Jałowiecki, B. (2000). Konkurencyjność regionów. *Studia Regionalne i Lokalne*, *1*(1) 7–24.

Karmowska, G. (2011). *Badanie i pomiar rozwoju regionalnego na przykładzie województwa zachodniopomorskiego*. Retrieved from www.wne.sggw.pl/czasopisma/pdf/RNR_2011_t98_z2s85.pdf

Kowalewska, M.D., (2015). Regionalne zróżnicowanie poziomu rozwoju gospodarczego w Polsce. In K. Krzyżanowska, M. Roman (red.), *Problemy rozwoju regionalnego i lokalnego w Polsce* (pp. 48–53). Pułtusk: Wydawnictwo Urzędu Miejskiego.

Liu, B.Ch. (1976). *Quality of Life Indicators in U.S. Metropolitan Areas: A Statistical Analysis*. New York: Praeger Publisher.

Łaszek, J., Olszewski, K., & Waszczuk, J. (2017). Regional diversification of saturation of the housing stock. Poland against the background of Europe. *Barometr Regionalny. Analizy i Prognozy*, *15*(2), 7–17.

Mach, Ł.(2015). Analiza potencjału infrastruktury mieszkalnictwa oraz jej wpływ na zrównoważony rozwój regionalny ze szczególnym uwzględnieniem RPO Województwa Opolskiego 2014–2020. *Barometr Regionalny Analizy i Prognozy*, *13*(4), 81–88.

Malina, A. (2004). *Wielowymiarowa analiza przestrzennego zróżnicowania struktury gospodarki Polski według województw*. Kraków: Wydawnictwo Akademii Ekonomicznej.

McGregor, J.A., & Pouw, N. (2017). Towards an economics of well-being. *Cambridge Journal of Economics*, *41*(4). **doi:10.1093/cje/bew044**

Miłek, D., & Paluch, P. (2016). Rozwój społeczno-gospodarczy polskich regionów. *Nierówności Społeczne a Wzrost Gospodarczy*, *48*(4), 9–103. **doi:10.15584/nsawg/2016.4.7**

Napyurkovska-Baryla, A. (2017). Primeneniye metoda prirodnykh pokazateley perkala s tsel'yu issledovaniya kachestva zhilishchnogo fonda v voyevodstvakh pol'shi. *Sel'skoye khozyaystvo – problemy i perspektivy 636.2.034.636.087.7*, 202–208.

Petelewicz, M., & Drabowicz, T. (2016). *Jakość życia – globalnie i lokalnie. Pomiar i wizualizacja*. Retrieved from www.socjologia.uni.lodz.pl/pliki/33jakosc_zycia_globalnie_i_lokalnie.pdf

Rokicka, E. (2014). Rozwój gospodarczy i społeczny a jakość życia. Wybrane kontrowersje teoretyczne i metodologiczne. *Przegląd Socjologiczny*, *63*(1), 87–101. Retrieved from http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-b3c6a293-baec-4132-aa28-6b5d84459e33

Sęk, H. (1993). Jakość życia a zdrowie. *Ruch Prawniczy Ekonomiczny i Socjologiczny*, *2*, 110–117.

Skrzypek, E. (2001). *Czynniki kształtujące jakość życia*. Retrieved from http://idn.org.pl/Lodz/Mken/Mken% 202001/Referaty%202001/14.pdf

Sobala-Gwosdz, A. (2004). *The change in the rural standard of living during the transformation period in the Podkarpackie Province, Poland*. Retrieved from http://www.pg.geo.uj.edu.pl/documents/3189230/4676037/2004_114_93-106.pdf/5bc00edc-4b58-4cfd-8b6e6b609bc6ddf7

Szelągowska, A. (2011). Finansowanie społecznego budownictwa mieszkaniowego. Warszawa: CeDeWu.

WHOQOL. (1995). Retrieved from http://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/

Trzebiatowski, J. (2011). Jakość życia w perspektywie nauk społecznych i medycznych – systematyzacja ujęć definicyjnych. *Hygeia Public Health*, *46*(1), 26.

Wejnert, B. (2001). Problematyka subiektywnej i obiektywnej oceny jakości życia w badaniach amerykańskich. In A. Wachowiak (red.), *Jak żyć? Wybrane problemy jakości życia*. Poznań: Wydawnictwo Fundacji „Humaniora".