

REACHING FOR QUALITY OF LIFE: REALITY AND ISSUES

Objectively Measured Quality of Life: the Case of Lithuanian Municipalities

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Abstract

Objective locally built potential to support, sustain and fulfil human needs, along with respective subjective individual experience of fulfilling these needs constitute the quality of life (QoL) in the local place phenomenon. The common concept of QoL in the local place anticipates that overall individually perceived QoL is constituted both by objective local living conditions as well as subjective individual experience and evaluation of external conditions in the local place. By following this conceptual model of quality of life in the local place, the article looks at the quality of life in the municipalities of Lithuania only from the perspective of objective measurement. As many other countries, Lithuania also faces development challenges related to huge disparities in socio-economic conditions among its local regions. The application of objective QoL measurement methodology for the analysis of the case of municipalities in Lithuania exemplifies the potential provided by the QoL measurement to investigate opportunities to achieve more equal development by the means of QoL improvements. Almost 40 objectively measured indicators are selected and used to conduct the research. The results of the research allow us describing the quality of life profiles of Lithuanian municipalities. These profiles are considered relevant inputs for QoL improvement strategies building processes.

Keywords: quality of life, local place, objective measures, Lithuanian municipalities, quality of life index.

Introduction

The relevance of this research is implied by the note that 'all people and all places are concerned with QoL' (Marans and Stimson, 2011a). Therefore, it is not surprising that the topic has attracted attention of researchers from many disciplines since the 1960s. While the topic has been studied with regularity for nearly half a century by researchers in psychology, sociology, geography, planning and other disciplines, the past decade has seen acceleration of scholarly interest in QoL including

a stream of studies investigating individual well-being and happiness.

QoL measurements by the selected sets of certain community indicators are not a new phenomenon. Various operationalisation approaches are used. Each approach reveals a different notion of the concept and thus highlights different ideas about components' relevance (Noll, 2002). Marans and Stimson (2011a) add that literature is replete with attempts to measure and analyze quality of life, although there is no single model nor a comprehensive set of measures that is widely accepted by researchers and policy makers. There are many debates around how to best assess QoL or its reflection in various aspects of daily life.

QoL issues were conceptually analyzed also by Lithuanian researchers in many different ways. Vanagas (1992, 1997, 1999) developed QoL improvement methodology based on cause-effect modelling that addresses the state governance level. According to Vanagas (1999), the QoL improvement strategies (i.e. priorities of strategic decisions) may be based on policy influencing particular determinant factors that are identified by employing statistical correlations between theoretically presumptive causal and effect variables. Milaseviciute, Pukeliene and Vilkas (2006) analysed aggregate QoL index development and indexing related issues. Objective and subjective measurements were used by the authors to analyze QoL in Lithuania. Akramaviciute and Ruzevicius (2007) analyzed and measured the quality of working life as one many possible QoL aspects. Janauskaite (2008) conceptually analysed the challenges in QoL research; quality of life features and factors are explored and the insights and observations of different related research spheres are revealed. These are just few references to the researches aimed at general QoL investigation. Many researches done in Lithuania are dedicated to special health, illnesses, ageing and other QoL aspects.

Applied research based on objective indicator's set measurements of QoL in Lithuania municipality level was already performed by 'Veidas' magazine (Kucinskaite and Kairiene, 2012); 2012 year ranking is the sixth annual attempt to rank all Lithuania municipalities according to

objectively measured QoL in the local place index. 2012 year ranking refers to data on 26 indicators.

The issues that are addressed by the research presented in this article, however, do not try to replicate the ranking mentioned above. The intensions of the present article are rather conceptual regardless the results that are purely empirical. The article strives to initiate and develop an academic discussion regarding relevance of applied theoretical general QoL concept, appropriateness of the set of used objective indicators, suitability of the proposed methodological approach.

The specifically twofold nature of QoL concept, constantly developing theoretical considerations and respective methodological conceptualizations lead to the wide multidimensionalism, which sometimes is referred as one of the most problematic conceptual aspects in QoL research (The Economist Intelligence Unit, 2005).

The present article does not try to come up to one general QoL measurement instrument with its application in the case of Lithuania municipalities. The selection of indicators to be used for estimating QoL in objective terms is determined mostly by the local place level data availability in Lithuania. Thus the existing structure and particular content of the open-access database of Statistics Lithuania Office determined the list of indicators and that list should not be treated as some conceptual result of the research.

The aim of the article is to reveal empirical profiles describing Lithuania municipalities in terms of objectively measured quality of life in the local place. The set of methods used to conduct the research includes research literature analysis as well as statistical data analysis based on the designed methodology for indexing and municipality ranking according to objective QoL measures.

The article is structured in the following way. The Quality of Life in the local place concept is briefly presented at the beginning of the article. The second chapter is devoted for discussing availability of the data required to measure QoL in Lithuanian local places. The methodology for calculating index values, ranking and profiling is developed afterwards. Finally, eight profiles of analyzed Lithuania municipalities are investigated. The article ends with concluding remarks.

The obtained empirical results – Lithuanian municipality profiles – may be useful to guide general development policy in the local places. The view from the perspective of aggregated indexes is considered relevant to highlight QoL aspects that need strategy attention, but this approach is too general to evaluate specific strategic decisions. The significance of the research lies in developing conceptual model of Life Quality improvement strategy building at the local places.

The Quality of Life in the local place concept

Wide ranging QoL conceptualizations aimed at investigating various aspects of human living differ in the lists of investigated indicators (as reviewed in Rybakovas, 2011). These sets of indicators are determined by the very nature of considered aspect of human living. QoL concept covers range of human living aspects: general health,

work, neighbourhoods, leisure, mental abilities, education, family living, socialization in some environments, certain illnesses, etc., including local place of living.

People live their lives in certain places or series of places, each of which has particular environmental characteristics. According to Marans and Stimson (2011a), those places might be viewed at various levels or scales – from the dwelling to the local area or neighbourhood, to the city, to the broader region or even to a state or a nation – and it may be argued that where people live will influence their lives and, therefore, their QoL.

The conceptual understanding and explanation of the QoL concept is quite common. It is being agreed that Quality of Life in some particular *aspect* of human living is determined by the objective characteristics of that aspect (considered in respect to the standard or some agreed adequate level for human needs fulfilment) along with the subjective individual evaluation of the human live related aspect being considered.

QoL in local place concept also considers objective characteristics of living in some particular place and subjective individual evaluation (assessment) of these characteristics. Often the objective quality of life measurements are performed under the *Community Indicators* perspective. Community indicators are aggregated or summarized statistics of social, economic and environmental issues relevant to a particular geographic area. Indicators are different from raw data because they are abbreviated, analysed statistics (Briggs, 1998; Davern et al., 2011). Community (also could be called social) indicators perspective is being considered in more detail in the next chapter of the article.

The quality of life in the local place concept could be structured in many ways. Veenhoven (2005, 2009) emphasizes external environment (measured objectively) which *may only create conditions* for an individual to feel certain level of QoL (this component is named *livability of environment*). This objective QoL encompasses factors, which are not regulated by public policy (e.g. climate conditions, quality of natural environment) and those regulated by public policy (e.g. political stability, political rights and civil liberties, corruption, economic growth, social security, etc.) (Pukeliene and Starkauskiene, 2011).

The QoL concept used further in the present research assumes that local place *livability* conditions determine in some extent the second local place QoL component defined by Veenhoven (2005, 2009), i.e. *life-ability of the persons*, encompassing internal individual capabilities to utilize external environment, to achieve a higher QoL. It means that *life-abilities* of local place residents, while considering QoL in the local place, are seen as being formed and created by the local place socio-economic conditions. Individual's capabilities to cope efficiently with living challenges, to seek the quality in life by means of own internal characteristics, competences and skills are analyzed under the personal liveability domain in the context of QoL including persons' health, education and intellectual capacities and capabilities. Analysing from the objective QoL measurement perspective, environmental indicators describing healthcare, education, environmental conditions are seen as relevant to cover this component.

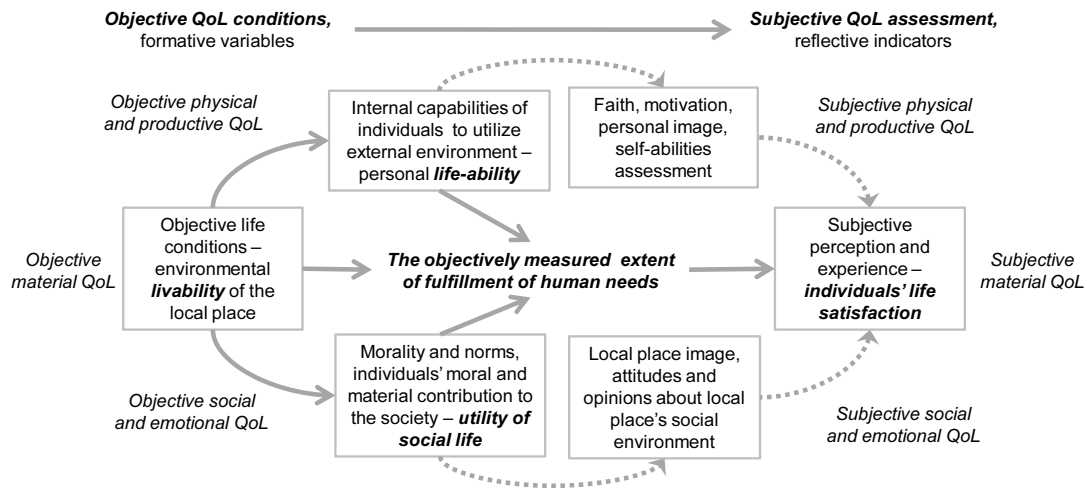


Figure 1. Quality of life concept (based on Veenhoven 2005, 2009; Pukeliene and Starkauskiene 2011)

Utility of social life is the third component in the QoL conceptualization, determined by individuals' behaviour, morality and norms as well as by individuals' moral and material contribution to the society development. This means that, according to Veenhoven (2005, 2009), not only external tangibles (i.e. environmental livability) are influencing individual quality of life, but external societal characteristics as outcomes of social life also influence QoL, perceived by any certain individual (Figure 1).

While analysing from the objective QoL measurement perspective, local social environment indicators describing participation in culture and sports, local government expenditures on safety and culture, criminal offenses, aging index, etc. are seen as relevant to cover the utility of social life as one of the conceptual QoL components.

All three above just mentioned local place QoL components lead to the final one – *individuals' satisfaction with life* (i.e. experienced well-being). According to Veenhoven (2005, 2009), these four components represent *apparent QoL* – as a product of livability of local environment, societal utility of life and individuals' ability to make use of opportunities afforded by socio-economic environment (Figure 1). Societal utility of life (defined by moral norms and rules determining individuals' moral and material contribution to the society and these norms respective behaviour) as well as individual life abilities are seen as causal factors determining *apparent QoL* which is seen as emerging from the existing potential, i.e. livability of local place of living. This QoL conceptualization is considered in more detailed way by Rybakovas (2011).

As it is shown in the Figure 1, livability of the local place as one of the objective QoL component corresponds to the *objective material QoL* variables. Thus material QoL variables and respective indicators are anticipated to be used to measure extent and quality of local livability as the component of QoL. Respectively *physical and productive QoL variables* are linked to personal life-ability component. *Social-emotional QoL variables* are seen as those suitable to measure utility of social life as the component of QoL.

While considering conceptually, it is being assumed that all objective QoL variables have to be evaluated subjectively by local place residents in order to obtain full

scale picture of local place quality of life. Figure 1 presents this notion by indicating relative positions of *subjective material, physical-productive and social-emotional QoL indicators* in the structure of the conceptual model. As noted above, subjective side of QoL is being measured by the means of subjective life quality aspects evaluation or residents' self-experience and life perception estimation. This kind of QoL measurements is not covered by the present article. Following chapter is aimed at detailed presentation of the list of indicators selected to measure objectively quality of life in Lithuania municipalities.

Selected objective indicators to measure quality of life in Lithuania municipalities

In order to understand the QoL in a particular setting, such as a city, municipality or region we, by following Marans and Stimson (2011a), need to measure conditions in that place using sets of indicators; to *monitor changes* in those conditions over time in order to appraise or determine if and how those conditions have changed; to *determine if these conditions have improved or deteriorated* and by how much. This effort might include evaluating the impact of various public or private interventions which sought to improve conditions. The present research addresses the very first goal listed above – to measure conditions of the recent time.

An important approach to the investigation of objective QoL still is the *social (community) indicators movement* which became popular from the 1960s and throughout the 1970s. It represented a shift in the concern of public attention away from a consideration of mostly economic phenomena to a consideration of the social state of society as well. Some referred to this as the move to develop a system of 'social accounts' (Marans and Stimson, 2011a; Davern et al., 2011). Smith (1973; cited in Marans and Stimson, 2011b) defined that selected social indicators should: measure the state of and changes over time in major aspects or dimensions of social conditions; individual indicators can be part of a comprehensive and interrelated set of measures embedded in a social model used to define public policy goals.

Locally created sets of community indicators aimed at measuring objective QoL in the local places (as reviewed by Marans and Stimson, 2011a) covers very wide range of local living conditions related aspects. In general terms, a local place as community's location consists of *resident people and facilities to support and sustain their needs*. Functional parts of the local location include residential, commercial, industrial and administrative functions as well as recreational and social facilities, all of which are supported by infrastructure consisting of roads, railways

and other transportation and communication systems, public facilities and service utilities such as water, energy and sewerage (Briggs, 2009, cited in Bagdoniene, Langviniene and Hopeniene, 2009). All these and maybe some other characteristics of the local place are important and thus relevant to be measured when objective QoL in the local place is considered. It could be stated here that though applied indicators systems are quite different they also share some common features, namely in the structure and the content of the selected indicators sets.

Table 1

Objective indicators selected to measure QoL in Lithuania municipalities

Livability of the local place. Objectively measured indicators of material quality of life		
No.	Indicator abbreviation.	Full description of indicators
1.	Budgets income	Municipal budgets income, total taxes, per capita in thousand Litas (M2040204 **)
2.	Expenditure on services	Budgets expenditure on general public services per capita in thousand Litas (M2040203)
3.	Expenditure on economic affairs	Municipal budgets expenditure on economic affairs per capita in thousand Litas (M2040203)
4.	Expenditure on housing	Budgets expenditure on housing and community amenities per capita in thsd. Litas (M2040203)
5.	Unemployed/employed *	Ratio of the registered unemployed persons to the working age population, % (M3050101)
6.	Employed/population	Ratio of the employed persons to average annual population, % (M3031011)
7.	Earnings	Average net monthly earnings in Litas (M3060838)
8.	Direct investment	Foreign direct investment at the end of the year per capita Litas (M2030204)
9.	Dwelling space	Useful floor space per capita (urban and rural areas), m ² (M3100101)
10.	Social housing *	Ratio of persons (families) who required social housing to population (M3100201)
Utility of social life. Objectively measured indicators of social-emotional quality of life		
11.	Expenditure on culture	Budgets expenditure on recreation, culture and religion per capita in thousand Litas (M2040203)
12.	Newspapers publishing	Number of annual published newspapers per capita (M3130202)
13.	Participants in cultural centres	Ratio of participants of cultural centres to total population, % (M3130108)
14.	Expenditure on safety	Budgets expenditure on public order and safety per capita in in thousand Litas (M2040203)
15.	Criminal offences *	Recorded criminal offences per 100 000 population (M3170102)
16.	Police officers	Police officers per 100 000 population (M3170402)
17.	Social expenditure	Municipal budgets expenditure on social protection per capita in in thousand Litas (M2040203)
18.	Ageing index *	Index of ageing, the ratio of aged (over 60 years) to the children (under 15 years old) (M3010221)
19.	Pension	Average old-age pension in Litas (M3160402)
20.	Pensioners	Persons entitled to pensions per 1000 population at working age (M3160402)
21.	Engaged in sports	Ratio of engaged in sports to total population (M3130302)
22.	Marriages	Marriages per 1 000 population (M3010306)
23.	Divorces *	Divorces per 1 000 population (M3010406)
24.	Net migration	Ratio of national and international migration (net migration) to the population total, % (M3020101)
25.	Voter turnout	Voter turnout compared to the total number of voters, % (M3220301)
Personal life-abilities. Objectively measured indicators of physical-productive quality of life		
26.	Expenditure on health	Municipal budgets expenditure on health per capita in in thousand Litas (M2040203)
27.	Health care professionals	Number of practicing health care professionals per 10 000 population (M3140103)
28.	Hospital beds	Hospital beds per 10 000 population (M3140105)
29.	Fertility	Total fertility rate (M3010510)
30.	Deaths of malignant neoplasms*	Deaths of malignant neoplasms, diseases of the circulatory system, diseases of the respiratory system and external causes per 100 000 population (M3010602)
31.	Deaths of diseases of the circulatory system*	
32.	Deaths of diseases of the respiratory system*	
33.	Deaths of external causes*	
34.	Natural change of population	Natural increase/decrease per 1 000 population (M3010501)
35.	visits to out-patient facilities*	Number of visits to out-patient facilities per capita (M3140202)
36.	Hospital discharges*	Number of hospital discharges per 1000 population (M3140312)
37.	Expenditure on education	Municipal budgets expenditure on education per capita in thousand Litas (M2040203)
38.	Air pollutants per person*	Emission of air pollutant from stationary sources per capita, kg (M8010401)
39.	Air pollutants per territory*	Emission of air pollutant from stationary sources per 1 square kilometre, kg (M8010401)

* Higher values of these indicators implicate negative aspects of QoL in the local place.

** The codes in brackets refer to the data tables in the Indicators Database of Statistics Lithuania, <http://db1.stat.gov.lt/statbank/>

Marans and Stimson (2011a) have reviewed wide range of objective methodology based empirical quality of life research. As a result of this review, authors provided the following list of examples of the most common and frequently used objective indicators applied to measure QoL in the city or other local place: employment rates, educational attainment, per capita income, crime statistics, domestic violence, death rates, incidence of chronic diseases, air quality, residential density, housing vacancy rates, amount of parkland, number of public transit riders, distance to public transit stop, availability of grocery/food stores, vehicle kilometres/miles travelled. Very similar lists may be found in other publications.

By following this as well as many other examples, considering also above already discussed conceptual model of local place QoL, Statistical Indicators database of Statistics Lithuania (2012) was explored. 39 indicators, providing data at the every single municipality level, as well as those corresponding to the conceptual model of the local place QoL were found (Table 1). As Table 1 indicates, 10 indicators are selected to measure livability of the local place; these are objectively measured indicators of material quality of life. 15 indicators are selected to measure utility of social life; these are objectively measured indicators of social-emotional quality of life. Remaining 14 indicators fall into personal life-abilities QoL component; these are objectively measured indicators of physical-productive quality of life.

All listed indicators are relative, comparable among cases. If particular indicator is calculated per capita or 10 000 or 100 000 population such indicator is used. If Statistics Lithuania (2012) provides only absolute values, such indicators are calculated per capita using average number of population in respective year.

Generally, the data for the year 2011 is used further in the analyses. Only following indicators lack 2011 year values: direct investment (2010 year data is used), deaths of malignant neoplasms, diseases of the circulatory system, diseases of the respiratory system, and deaths of external causes (2009 year data is used), hospital discharges and air pollution (2010 year data is used because 2011 year data was not provided while data was collected).

Municipal budgets incomes, expenditures on general public services, economic affairs, housing and community amenities represent material (economic) potential of the local place (i.e. particular municipality). The amount of public sector income and expenditures are special aspects of the local place with the expected direct influence on the local residents' material Quality of Life.

Material robustness of the particular socio-economic environment is reflected also by the indicators of unemployment and employment rates. The higher level of unemployment is considered as negative aspect endangering quality of life among local residents. Higher ratio of the employed persons compared to the average of annual population count, contrary, reflects locally existing potential to enhance material QoL by entering local labour market, engaging in economic activities, and thus earning material resources to fulfil existing human needs. The same comment also goes to the average earnings indicator.

Foreign direct investment is not directly describing material QoL of individual residents, but the amount of investment reflects indirect material potential to benefit from them by sharing locally generated economic wealth. Foreign direct investment indicator characterizes economic livability of the considered local place.

Social housing, however, reflects negative aspects of QoL: the more need for social housing in particular place, the more public expenditures to increase material QoL for distinct group of residents are granted while decreasing potential for all others. Dwelling space indicator could be termed as one linking material and physical productive QoL. Bigger dwelling space makes lives more comfortable and increase quality of life not just from the material, but from the physical-productive QoL perspective as well.

Physical-productive QoL indicators measure personal life-abilities, i.e. existing potential of local residents to use external opportunities, provided by the coal socio-economic system. Health, education, and quality of natural environment are common themes under this perspective. Considering physical-productive objectively measured quality of life first of all there is a need to investigate municipal budgets expenditure on healthcare. This indicator represents the potential of the health care system in local place and is one of the most common in QoL in the local places research. Following healthcare aimed budgets expenditures number of locally practicing health care professionals (total of physicians, nurses and odontologists) complements the picture by showing the accessibility of local health care system. If the number of health care professionals is very low, residents do not have the opportunity to take full-rate health care. For example, the Sub-Saharan Africa suffers from 27 per cent of the world's total burden of disease and has only 3,5 per cent of the world's health care workforce and 1,7 per cent of the world's physicians (data from World Health Organization, in Chen et al., 2012). Hospital beds per defined number of local residents show the annual average relative number of equipped beds (personnel and medical equipment) in hospitals. This indicator also is related to the quality of life in the physical and productive or personal life ability terms: the more hospital beds has the local place the better becomes health related quality of life (although here considered only from the objective measurement point of view and thus showing only existing potential and created opportunities), which determines longer expected lifetime of residents as well as physical and productive capacities.

Total fertility rate is important when describing demographic situation in local place population and revealing its physical potential to increase and develop. The most favourable situation arises when the fertility rate secures ordinary reproduction of local place's residents and varies about 2.1 (it means that the woman should give birth at least to 2 babies).

High levels of deaths due to malignant neoplasms, diseases of the circulatory system, as well as diseases of the respiratory system and external causes indicate objectively health state in particular local place. Natural increase (decrease) of population is the indicator for representing demographical changes related to births and deaths. Naturally increasing population in the QoL

measurement context is treated as robust in physical and productive terms.

Number of visits to out-patient facilities per capita is directly related to health and productivity of residents determined by population's health conditions. Higher value of this indicator represents negative aspects of physical-productive objectively measured quality of life. This indicator is closely related to the number of hospital discharges. Both of them show the amount of incidence of disease in local place, whereas higher number of hospital beds shows positive aspects of physical-productive quality of life (as providing opportunity for better health care).

Municipal budgets expenditure on education measures physical-productive QoL from the population education perspective. School enrolment rate and some other indicators also could be used here, but they are not provided in open-access Lithuanian statistics databases. Expenditures on education indicator represent the potential of education system in local place; this potential along with other above already mentioned aspects measured by other physical-productive QoL indicators contributes to building personal life-abilities for local place residents thus improving their objectively measured Quality of Life.

Besides health and education, few remaining physical-productive QoL measuring indicators are aimed at conditions in natural environment. Emission of air pollutants from stationary sources per capita and emission of air pollutant per 1 square kilometre are meant to show the level of physical-productive QoL from environmental perspective. They indicate objective conditions determining health and respective productivity of residents.

Social-emotional QoL indicators, measuring local place's utility of social life encompass municipal budgets expenditure on recreation, culture and religion, expenditure on public order and safety, expenditure on social protection (relative per capita values are used). Indicator of annual published newspapers per capita is treated as one relevant to measure social-emotional QoL due to the conceptual assumption that newspapers or other type of locality oriented mass media could be considered as channels and means to increase local awareness in society, to develop discussion, to elaborate and solve problems – while seeing these aspects as ones helping to strengthen social relationships between residents.

Common in local place QoL research is indicator of recorded criminal offences per some defined number population. Higher values are treated in reversed order, it means, that smaller numbers of recorded criminal offences are seen as ones showing higher life quality. The indicator of the total number of police officers per defined number of population represents the potential to the social system to maintain order and guarantee safety in the social environment.

Average old-age pension (in value) and persons entitled to pensions per 1000 population at working age are relevant indicators to do comparison among different localities. Higher numbers are treated as representing more favourable social and material conditions provided by the local place's social environment for the ageing people.

Relative indicators of marriages and divorces also are used in some local place QoL research. These indicators

only in some part could be determined or influenced by local place's QoL influencing conditions. They, though not in full-scale, however represent favourableness of local place's conditions to lead the family life; and happy family life is one of the most common subjective indicators of the QoL in general terms and in the local place context as well.

The ratio of the absolute number of national and international net migration to the average annual population number is one more indicator used to show favourableness for high quality living of local place's conditions. Negative net migration values indicate that the potential for high quality living is low. It is well established that, at least in part, migration patterns and urban growth arise in response to differences in QoL between places (Keeble, 1990; Ley, 1996, cited in Marans and Stimson, 2011a). Patterns of inter-urban (and maybe inter-national, inter-regional or inter-municipal) mobility are also related to differences in both the objective characteristics of neighbourhoods and the subjective evaluations people make about aspects of the QoL, and how that may vary across urban (or local) space (Keeble 1990; Ley 1996). 'It is, then, not surprising that there is widespread interest in QoL, particularly within the context of the local places where people live' (Marans and Stimson, 2011a).

As it is seen in the Table 1, the list of used socio-emotional indicators is extended by some objective indicators that represent particular aspects of residents' behaviour. Marans and Stimson (2011a) exclude this kind of indicators and form third indicators group (among already commonly agreed objective and subjective QoL indicators groups), i.e. *behavioural QoL indicators*. This group includes these indicators: public transit use, participation in sports, amount of walking and bicycling, visits to cultural amenities and events, visits to parks, visits to health clinics/doctors, amount of neighbouring, participation in voluntary organizations, participation in local decision making organizations, residential mobility. Only few of behavioural QoL indicators are not available in Lithuania municipality level statistics. Most of the above mentioned behavioural indicators are available and used in present research investigating objectively measured QoL in Lithuania municipalities. The suggested indicator of participation in local decision making organizations is replaced by the indicator of voter turnout compared to the total number of voters, i.e. participation level in the most recent municipal councils' election.

All above described indicators (Table 1) are relative in their nature. Marans and Stimson, (2011b) define that a relative indicator has no absolute limit or optima but is simply *a measure of the relative position of a territorial unit with respect to the specified condition*. A relative territorial indicator might be benchmarked against the national incidence of the condition through the use of the Location Quotient (LQ) concept to indicate the extent to which the incidence of the condition in a territorial unit is above or below the national incidence of that condition where the national benchmark is $LQ = 1$ or 100 percent. Municipalities indexing methodology based on this approach in more detailed way is considered through the following chapter of this article.

Indexing methodology

There are many serious challenges in developing an aggregate index of QoL from the individual components – i.e. such indicators as described above. Given that the certain component attributes have different measures, combining the measures would be akin to comparing ‘apples and oranges’.

As already described above, all selected indicators (Table 1) are either relative originally, i.e. calculated as absolute values per some defined number of population, either this calculation is done by the authors of the article. Absolute indicator values are divided by the number of average annual population in order to get relative and thus comparable data that is not influenced by the size of the object (e.g. municipal budgets expenditure on general public services (absolute amount in Litas) is divided by the average annual population). The use of relative indicators let to compare investigated objects (i.e. Lithuania municipalities) against each other.

In order to obtain ‘pure’ Quality of Life measure, *observed* state of the local level place conditions, measured by selected set of social indicators, should be compared to the individuals’ *expectations* about ‘the way life ought to be’ considering any specific indicator (Smith, 1973, p. 73). The difference between observed objective state in environment’s conditions and respective subjective expectations then show the extent to which objective conditions are sufficient or scarce to fulfil expectations related human needs. Higher positive evaluation then shows that conditions in the environment are sufficient.

Since the special sociological surveys covering all municipalities and providing reliable data about human needs, expressed in the terms of expectations considering extensive set of social indicators are not conducted, the arithmetic average of the objective conditions state in all considered objects (i.e. municipalities in the present case) could be implicitly considered as representing desires, expectations and level of subjective human needs in the QoL in the local place context. This average state is being treated as some living standard that reflects the common state in socio-economic development and respective living conditions in the country, providing a context for considerations about QoL in particular municipalities.

The obvious limitation of this approach (based on the comparison to the average state) is that all considered objects are seen as having the same level of human needs related to expectations about the possibilities to fulfil them at local place of living. Though such approach does not replace the need for subjective evaluation of human needs existing in the particular local place socio-economic environment, every single place data comparison to the whole country average, nevertheless, is sufficient way to do rankings according to objectively measured level of QoL in the local place. Indexing could be done according to the any single indicator, average of groups of them, or average of whole list of used indicators.

To calculate the index and provide municipality rankings following procedure is applied. Single indicator of relative nature (r_s) is compared to the average value (r_w) of all considered objects (i.e. all Lithuania municipalities). Then difference between this way calculated value (in

percents) and 100% is obtained (Equation 1). The negative value of this difference show that the QoL level in certain municipality respective some particular objectively measured QoL aspect is below the average level in whole country. It also means that implicitly it could be expected that human needs related to this specific measured aspect are not fulfilled due to the insufficient socio-economical environmental conditions. The potential to increase QoL in these measured aspects by aiming to eliminate the negative difference are reasoned by the fact, that the average state of the whole country’s socio-economic development is caring some unused potential which could be utilised by effective policy and other managerial means.

$$R_s = \left(\frac{r_s}{r_w} \cdot 100 \right) - 100 \quad (1)$$

As already noted above and indicated in Table 1, some of indicators are negative, i.e. representing negative state in QoL perspective with positively increasing values. For example: criminal offences, divorces, etc. (Table 1). In order to have all indicators comparable and expressed in the same way, Equation 1 is multiplied by (-1), Equation 2 converts negative difference to the positive one, which means that smaller absolute values are showing favourable positive conditions. The final positive and negative values now are being understood in the save way with Eq. 1.

$$R_s = \left(\left(\frac{r_s}{r_w} \cdot 100 \right) - 100 \right) \times (-1) \quad (2)$$

The indicators are not weighted while aggregate value for indexing is calculated. In order to aggregate obtained measures and get value for aggregated indexing (I_s), the indexed (i.e. those already compared to the average by Equations 1 and 2) values of defined number (N) of indicators (R_s) are summed and divided by the total number (N) of indicators used to calculate value for indexing (Equation 3).

$$I_s = \frac{\sum_{n=1}^N R_{sn}}{N} \quad (3)$$

Three indexes and respective rankings are produced to analyze in aggregated way objectively measured QoL in Lithuania municipalities. The first indexing value aggregates objective material QoL indicators, including municipal budgets income, expenditure on services, expenditure on economic affairs, expenditure on housing and all other indicators listed in Table 1. The second indexing value is produced by averaging indexed values of all measures aimed to evaluate personal life-abilities, i.e. objectively measured indicators of physical-productive quality of life. This group includes expenditure on health, health care professionals, hospital beds, fertility and other indicators listed in Table 1 and reasoned in previous chapter. The third indexing value is produced by averaging indexed values of all measures aimed to evaluate utility of social life, i.e. objectively measured indicators of social-emotional quality of life. As indicated in the Table 1, this

group includes: expenditure on culture, newspapers publishing, participants in cultural centres, expenditure on safety and range of other indicators. The fourth index averages indexed values all 39 used indicators.

Objectively measured quality of life in Lithuania municipalities: objective QoL index

The territory of Lithuanian Republic is composed of 60 municipalities. The average annual population of the Republic was 3.22 million residents in the year 2011 (Statistics Lithuania, 2012). The population of the country was decreasing constantly through the last five year. According to the official statistics, Lithuania lost more

than 150 thousand residents, amounting to almost 5 percent of the 2007 year population. Five biggest cities count for 40 percent of the population: Vilnius city municipality – 17 percent, Kaunas, c. mun. – 10 percent, Klaipėda c. mun. – 5.5 percent; Šiauliai and Panevėžys c. municipalities – 3.7 and 3.3 percent of the Lithuania Republic population in the year 2011. According to the population count, the biggest district municipalities are Vilnius, Kaunas, Marijampolė, Mazeikiai, Kedainiai district municipalities, counting 2-3 percent of the Lithuania population. The smallest are Pagegiai, Rietavas, Birštonas and Neringa municipalities, counting for 0.1-0.3 percent of Lithuania population or up to 10 thousand residents (as in 2011).

Table 2

Objectively measured Quality of Life in Lithuania, 2011: descriptive statistics (Statistics Lithuania, 2012)

Indicator	Average	Standard deviation	Coefficient of variation	Minimum value	Municipality	Maximum value	Municipality
Budgets income	0.91	0.42	0.46	0.73	Taurage d. mun.	3.90	Neringa mun.
Expenditure on services	0.28	0.15	0.54	0.14	Visaginas mun.	1.23	Neringa mun.
Expenditure on economic affairs	0.14	0.12	0.85	0.01	Šiauliai c. mun.	0.70	Neringa mun.
Expenditure on housing	0.08	0.06	0.77	0.01	Kaunas d. mun.	0.38	Neringa mun.
Unemployed/employed*	12.42	2.60	0.21	4.20	Neringa mun.	19.00	Ignalina d. mun.
Employed/population	38.55	6.03	0.16	27.84	Ignalina d. mun.	51.97	Vilnius c. mun.
Earnings	1356.75	147.19	0.11	1134.00	Salcininkai d. mun.	1876.00	Vilnius c. mun.
Direct investment**	3994.72	9093.93	2.28	10.00	Silalė d. mun.	55705.00	Mazeikiai d. mun.
Dwelling space	27.95	3.84	0.14	21.20	Klaipėda d. mun.	39.70	Ignalina d. mun.
Social housing*	0.91	0.39	0.43	0.30	Skuodas d. mun.	2.65	Neringa mun.
Expenditure on culture	0.16	0.14	0.88	0.05	Vilnius c. mun.	0.90	Neringa mun.
Newspapers publishing	0.03	0.03	0.96	0.00	Šiauliai d. mun.	0.14	Vilnius c. mun.
Participants in cultural centres	2.10	1.22	0.58	0.09	Kaunas c. mun.	5.60	Birštonas mun.
Expenditure on safety	0.03	0.02	0.55	0.00	Kaunas c. mun.	0.08	Neringa mun.
Criminal offences*	2030.27	544.62	0.27	769.00	Birštonas mun.	3810.00	Vilnius c. mun.
Police officers	260.29	71.52	0.27	152.00	Šiauliai d. mun.	636.00	Neringa mun.
Social expenditure	0.49	0.11	0.24	0.19	Neringa mun.	0.80	Akmene d. mun.
Ageing index*	152.32	29.59	0.19	108.00	Mazeikiai d. mun.	234.00	Ignalina d. mun.
Pension	733.60	33.44	0.05	657.54	Silalė d. mun.	856.20	Visaginas mun.
Pensioners	307.38	50.52	0.16	164.00	Visaginas mun.	461.00	Ignalina d. mun.
Engaged in sports	24.26	16.30	0.67	1.48	Alytus d. mun.	112.54	Alytus c. mun.
Marriages	5.65	0.93	0.16	4.20	Rokiskis, Pasvalys d.	10.00	Neringa mun.
Divorces*	3.24	0.59	0.18	2.20	Svencionys d. mun.	5.90	Neringa mun.
Net migration	-1.22	0.72		-2.87	Visaginas mun.	1.59	Neringa mun.
Voter turnout	47.40	7.93	0.17	33.55	Klaipėda c. mun.	66.57	Birštonas mun.
Expenditure on health	0.01	0.01	0.80	0.00	Zarasai d. mun.	0.05	Neringa mun.
Health care professionals	81.38	33.59	0.41	23.10	Panevėžys d. mun.	191.90	Kaunas c. mun.
Hospital beds	61.15	37.69	0.62	10.50	Skuodas d. mun.	174.40	Elektrenai mun.
Fertility	1.59	0.13	0.08	1.28	Utena d. mun.	1.86	Neringa mun.
Deaths of malignant neoplasms***	257.47	46.92	0.18	161.90	Visaginas mun.	366.50	Moletai d. mun.
...of circulatory system diseases***	790.55	187.35	0.24	334.40	Visaginas mun.	1254.10	Zarasai d. mun.
...of respiratory system diseases***	58.30	24.58	0.42	17.00	Palanga c. mun.	136.90	Moletai d. mun.
Deaths of external causes***	140.57	37.46	0.27	56.80	Palanga c. mun.	237.10	Trakai d. mun.
Natural change of population	-4.28	3.80		-16.10	Ignalina d. mun.	4.60	Neringa mun.
visits to out-patient facilities*	5.85	1.51	0.26	2.60	Birštonas mun.	9.90	Kaunas c. mun.
Hospital discharges***	242.97	28.26	0.12	156.50	Neringa mun.	305.90	Akmene d. mun.
Expenditure on education	1.17	0.14	0.12	0.79	Alytus d. mun.	1.71	Birštonas mun.
Air pollutants per resident***	20.87	52.90	2.53	1.70	Skuodas d. mun.	398.90	Mazeikiai d. mun.
Air pollutants per territory***	2657.43	6072.66	2.29	41.00	Skuodas d. mun.	29854.00	Klaipėda c. mun.

* Higher values of these indicators implicate negative aspects of QoL.

** Earlier year (2009 or 2010) data is show

Table 3

The index values of material, social-emotional, physical-productive QoL in Lithuania municipalities, 2011

Municipality	Material QoL	Social-emotional	Physical-productive	Objective QoL	Rank
Neringa mun.	130.87	79.84	40.91	78.90	1
Vilnius c. mun.	98.16	15.18	15.88	37.27	2
Birstonas mun.	12.81	51.57	28.64	33.53	3
Utena d. mun.	10.82	5.73	6.24	7.22	7
Alytus c. mun.	-2.73	22.31	1.41	8.39	6
Kelme d. mun.	-6.48	2.10	14.08	4.20	10
Siauliai c. mun.	-12.59	1.62	18.44	4.02	11
Anyksciai d.	-12.05	13.45	5.29	3.98	12
Birzai d. mun.	-11.36	10.01	7.45	3.61	13
Pasvalys d. mun.	-5.28	4.29	7.88	3.12	14
Kretinga d. mun.	-7.97	6.11	5.07	2.12	17
Lazdijai d. mun.	-14.01	10.70	3.35	1.73	20
Sakiai d. mun.	-23.56	4.12	10.55	-0.67	26
Palanga c. mun.	81.87	-3.19	35.58	32.54	4
Druskininkai	23.16	-1.85	12.38	9.67	5
Klaipeda d. mun.	13.16	-3.33	7.77	4.88	8
Pakruojis d. mun.	2.88	-4.84	10.29	2.57	15
Pagegiai mun.	4.29	-2.49	1.42	0.65	22
Alytus d. mun.	12.84	1.82	-5.62	1.98	19
Ignalina d. mun.	0.94	7.96	-17.21	-2.87	37
Silale d. mun.	-15.28	-1.44	24.18	4.21	9
Rokiskis d. mun.	-5.22	-0.16	9.48	2.00	18
Jurbarkas d.	-10.37	-3.55	10.18	-0.37	24
Raseiniai d. mun.	-8.98	-0.78	6.00	-0.45	25
Trakai d. mun.	-4.41	-5.86	6.60	-1.02	29
Marjampole	-15.77	-1.27	9.04	-1.29	30
Joniskis d. mun.	-16.91	-3.14	11.59	-1.38	31
Elektrenai mun.	-7.52	-7.44	9.28	-1.46	32
Kaunas d. mun.	-16.33	-10.86	17.47	-2.09	33
Skuodas d. mun.	-10.42	-2.46	3.78	-2.26	34
Telsiai d. mun.	-18.80	-5.75	12.39	-2.58	36
Salcininkai d.	-16.77	-6.23	7.66	-3.95	38
Ukmerge d. mun.	-7.58	-8.35	2.46	-4.27	39
Siauliai d. mun.	-4.54	-14.03	5.64	-4.54	40
Radviliskis d.	-22.38	-8.55	11.04	-5.06	41
Taurage d. mun.	-24.62	-9.46	13.00	-5.28	42
Plunge d. mun.	-25.25	-6.46	6.83	-6.51	43
Vilkaviskis d.	-20.84	-11.07	8.52	-6.54	44
Vilnius d. mun.	-7.01	-19.39	4.92	-7.49	48
Kaisiadorys d.	-21.34	-11.72	5.87	-7.87	49
Silute d. mun.	-11.53	-25.00	3.55	-11.46	56
Kazlu Ruda mun.	34.66	-6.66	-11.19	2.31	16
Kedainiai d. mun.	26.21	-10.97	-4.13	1.02	21
Rietavas mun.	0.80	-3.08	-3.73	-2.30	35
Kaunas c. mun.	16.45	-2.69	-31.48	-8.12	50
Klaipeda c. mun.	12.58	-1.51	-32.99	-9.20	54
Mazeikiai d.	108.58	-13.15	-166.36	-36.94	60
Kupiskis d. mun.	-11.08	7.45	-0.32	-0.09	23
Varena d. mun.	-18.30	18.61	-9.17	-0.82	27
Zarasai d. mun.	-9.63	17.84	-14.56	-0.84	28
Panevezys d.	-20.80	0.81	-5.47	-7.19	47
Panevezys c.	-11.72	2.63	-23.49	-10.43	55
Svencionys d..	-5.87	-1.91	-12.58	-6.76	45
Prienai d. mun.	-23.27	-2.00	-0.27	-6.83	46
Kalvarija mun.	-26.61	-4.03	-0.29	-8.60	51
Sirvintos d. mun.	-12.61	-4.24	-11.04	-8.83	52
Moletai d. mun.	-14.91	-1.84	-12.49	-9.01	53
Jonava d. mun.	-22.71	-12.19	-4.38	-12.09	57
Visaginas mun.	-16.43	-23.64	-9.54	-16.73	58
Akmene d. mun.	-9.24	-5.67	-43.72	-20.24	59

As noted above, the indexing value for certain indicator of particular municipality is obtained by comparing the indicator's value against average of the whole ranked sample. Thus Table 2 indicates the contextual characteristics for this comparison by providing some basic descriptive statistical parameters of the sample.

The coefficient of variation (Table 2) is defined as the ratio of the standard deviation to the mean. It shows the extent of variability in relation to mean of the sample data. The value of the coefficient of variation is independent of the unit in which the measurement has been taken, so it is a dimensionless number indicating the relative amount of values variation. The coefficient is useful for comparisons between data sets with different units (exact units of measurement of each indicator are mentioned in Table 1, while explaining indicators' meaning and data sources).

When investigating the Quality of Life, coefficient of variation indicates how much measured conditions are vary in observed objects, i.e. local places – Lithuania Republic municipalities. Foreign direct investment indicator varies the most in the group of material QoL measurements aimed to investigate livability of the local place. The range between minimum and maximum values differs in hundreds of times from just 10 Litas per capita in Silale district municipality to almost 56 thousand Litas in Mazeikiai d. mun. However, as it is noted above, the conceptual specifics of the QoL framework does not allow concluding about the QoL state from a single indicator tests. The range of relevant indicators, covering as wide as possible range of investigated kind of QoL related aspects, should be used to come to some generalized insights (at least during the first phases of measurement instrument development). As in the case of Mazeikiai d. mun., even extremely high value of one indicator of foreign direct investment does not seem very influential in the context of the full indicators range; it is discussed further and shown in the Table 3 below, that measurements conducted by using full indicators range determined the lowest position for Mazeikiai d. mun. in ranking done by the index aggregating measures of all 39 indicators. Two more indicators having extremely big value range are the amount of emission of air pollutants calculated per municipality resident and square kilometre of the municipality territory. These indicators are negative in QoL perspective.

All other material QoL indicators also vary in some bigger or smaller range (Table 2). The least average variation is observed in the cases of unemployment rate (although the values range defined by the minimum and maximum values is not small, the coefficient of variation shows that standard variation is moderate, amounting some 20% if compared to the mean value), earnings, dwelling space, and some other indicators could be mentioned here. Budgets expenditures on culture and safety, newspaper publishing rate, the extent of participation in the culture and engagement in sports activities are most uneven Lithuania municipalities' characteristics in the local place QoL, measured by the social-emotional QoL indicators. Besides already mentioned air pollution measures, other most vary physical-productive QoL indicators are: expenditures on health and hospital beds per 10 thousand of population. It indicates that health care conditions also

are among those factors that vary extensively among the observed municipalities thus influencing objectively measured QoL most greatly.

The form, structure and size of the scientific paper let to look only at the averaged measures – i.e. aggregated QoL indexes without deeper and considering certain indicators investigation of the inner characteristics of particular municipality's measurements. Single indicator level investigation is necessary while strategies for QoL improvements are being elaborated. The scope of the present article does not cover such task; it tries to look at the general structure and presumptive QoL profiles. The municipality profiling, however, could be the very first step in developing QoL improvement strategies for some certain municipalities. Thus the research results presented in the present article are supposed to be useful for further investigation directed at the goal to improve or reach better balanced QoL in particular places.

As it is described above in the present article while defining indexing methodology, three indexes aggregating (by finding arithmetic averages) material, social-emotional and physical-productive QoL indicators are calculated to summarize measurements. The general objective QoL index (Table 3) includes data from all 39 selected indicators. The Lithuania municipality ranking on the objective QoL is done according to this final all indicators' measurements including index.

Table 3 demonstrates that eight municipality groups are formed according to the aggregate values of material, social-emotional and physical-productive QoL indexes. The first (one listed at the very top of Table 3) group includes Neringa, Vilnius city, Birstonas and Utena district municipalities. This first group reveals local places in Lithuania where objectively measured QoL is balanced in most sustainable way. It means that measurements of all QoL in the local place aspects (just when looking at them by the three major aspects group aggregating indexes) are above the country average. Such situation let to conclude that local place's livability, built residents' life-abilities and existing utility of the social life conditions and respective objective QoL potential are sufficient to fulfil human needs, just when these needs are implicitly estimated and guessed respecting opportunities provided by the environment at the some certain state of its socio-economic development.

It is determined by the specific nature of the present methodology used to analyze the data and provide rankings that even those objects marked with positive overall objective QoL index (as most of municipalities in the first four groups listed in Table 3) may also have some negative objective QoL aspects that are outweighed by positive characteristics and hidden in aggregate index. For example, Neringa mun. is ranked first by the average index showing that overall general objective QoL is almost twice (in 80 percent) higher than average state in the Republic of Lithuania but Neringa mun. also has weaknesses: e.g. social housing (index value -192) shows that the ratio of persons (families) who required social housing to total population is almost three times greater than average value in Lithuania; dwelling space in Neringa is in about 16 percent less than Lithuanian average; negative in Neringa

mun. also are social expenditures (index value -61), divorces (-82), healthcare professionals (-43) and hospital beds (-58) indicators.

The general nature that in some cases might be considered as shortcoming of wide scope of different characteristics including indexing and respective ranking is that details are hidden in the aggregated measures. Nevertheless, it is true that aggregate indexes are suitable to provide background for general insights. This way it is common to analyze QoL and widely used in many cases (e.g. Davern et al., 2011; Bussell and Sheldon, 2011; Marans and Stimson, 2011b; Guhathakurta and Cao, 2011; Mulligan and Carruthers, 2011). The index values measure aggregate state, though not display details. Differences in aggregated values expose and reflect variation in composition of measured aspects.

All remaining groups of observed and respectively ranked Lithuania municipalities exposed in the Table 3 reveal some 'imbalances' or 'insufficiencies' in objective QoL. These 'imbalances' mean that in some one, two or even all three objective QoL indicator's aggregation groups negatively evaluated (again, considering average level) measures outweighed positive ones.

The second group (Table 3) includes municipalities where objective material QoL could be termed as not sufficient (i.e. outweighed by some certain negatively evaluated material QoL measures). Alytus c. mun., as an example, performs well in social-emotional QoL thus building comparatively high utility of social life (that overweighs Lithuania average in more than 22 percent), but material and physical-productive QoL is just about average; material QoL is slightly below the average state (index value -2,73). Suchlike conclusions about objective QoL could be made for all other municipality cases in the same way, i.e. by considering three – material, social-emotional and physical-productive – QoL indicators aggregating indexes which display relative (i.e. in comparison to whole country average level) level of QoL.

Palanga c., Druskininkai, Klaipeda d., Pakruojis d. and Pagegiai mun. (the third group, Table 3) also are termed as having comparably (i.e. in the context of or compared to Lithuania Republic average) high objectively measured QoL (as the generalized all 39 indicator's considering QoL index is positive, ranging up to value 32, and allowing mentioned municipalities to be ranked in up to 4th position as in the case of Palanga c. mun.). But the objective QoL in these municipalities are misbalanced in utility of social life aspects measured by social-emotional QoL indicators (i.e. index aggregating social-emotional QoL indicator's values is negative, meaning that averaged state of respective measured conditions is below the Lithuania average). Suchlike conclusions are based only on the values of three indicators groups aggregating indexes. These conclusions are sufficient to envisage main strategic directions for quality of life improvement strategies. But they are rather too general for developing some particular quality of life improvements aimed initiatives. Thus, after general objective QoL profile (composed from aggregated indexes) of certain municipality is obtained, further case by case and indicator by indicator studies are necessary for detailed

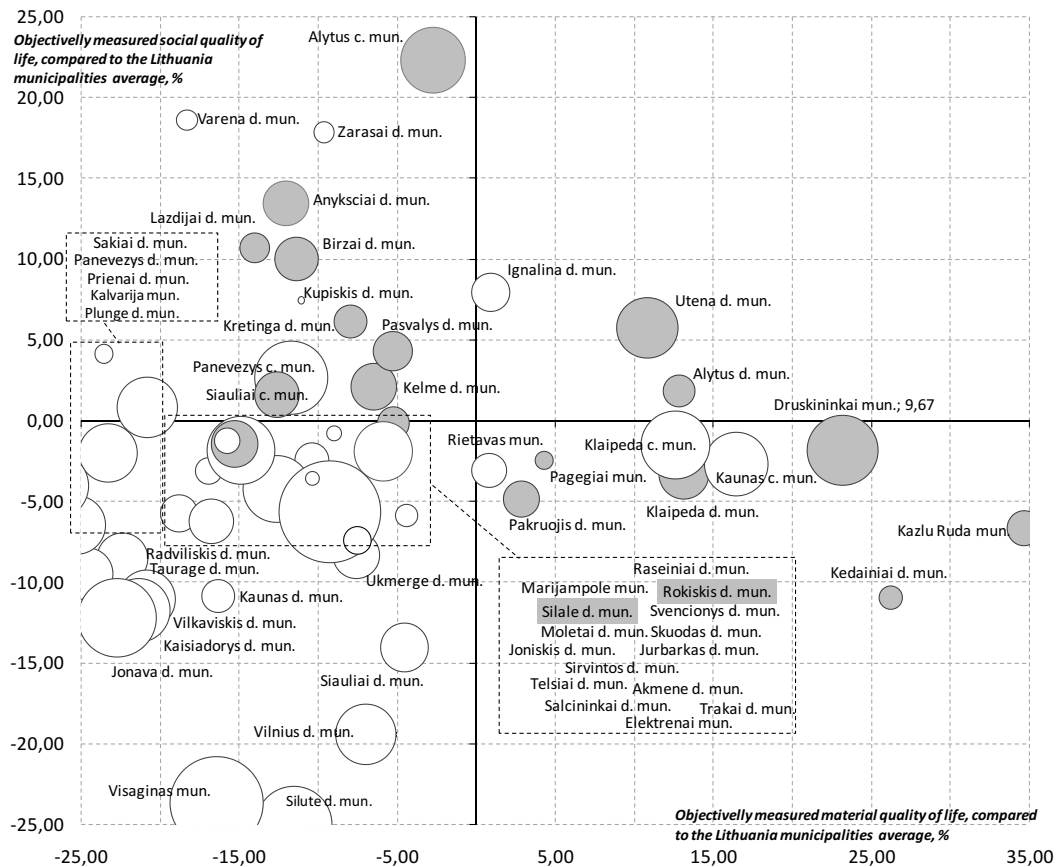
and easily applicable in strategic management process conclusions and recommendations to be elaborated.

Only some brief comments could be provided here illustrating the potential for strategy related applications of composite details of aggregated indexes. The most negative aspects in the above mentioned Palanga c. mun. social-emotional QoL are social expenditure (index value is -18), newspaper publishing (-29), criminal offences (-31), participation in cultural centres activities (-44), expenditure on safety (-72). Druskininkai municipality is ranked in 5th position of Lithuania municipalities' objective QoL ranking, but has following negative aspects in social-emotional QoL in the local place: expenditure on culture (index value -13), ageing index (-23), participants in cultural centres (-46), newspapers publishing (-59).

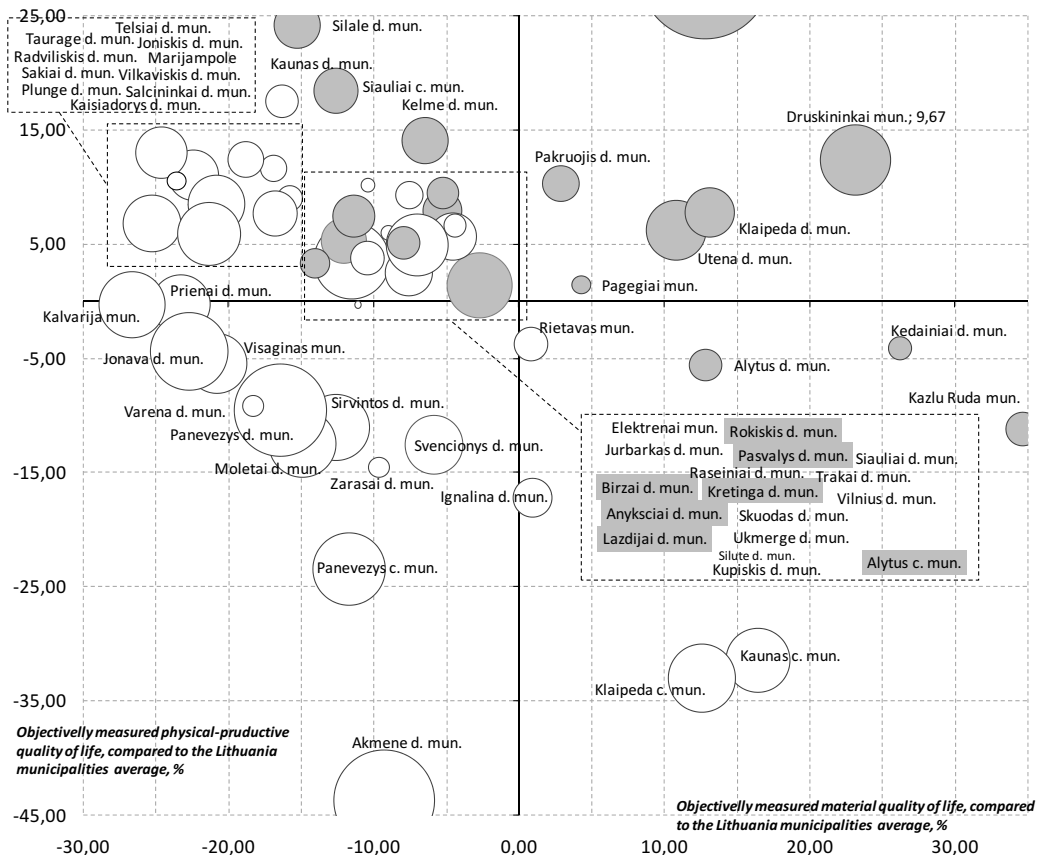
More detailed conclusions and with valuable inspiring references to required decisions and possible respective policy initiatives could be elaborated by looking at the explanations on used indicators (Table 1). For example, the negative value of ageing index in the case of Druskininkai municipality means that the ratio of aged people (over 60 years old) to the children (under 15 years old) is greater than Lithuania average in 23 percent (as the indicator shows negative aspect of QoL, the calculated index value is inversed). The Table 2 informs that average ageing index in Lithuania is around 152 percent, thus revealing that the number of aged people in social-demographic structure of Druskininkai municipality exceeds the number of children almost twice (ageing index value is 187 percent). It may mean that local place conditions for growing children are considered not relevant and not enough sufficient in analyzed municipality. Such conclusions could be relevant to discuss in policy and development related contexts. However, as it is already noted above, single indicator level analyzes, providing strategic decisions outlining insights, is not covered by the object of the present paper.

The fourth Lithuania municipalities group marked in Table 3 distinguish local places where objective QoL is imbalanced in physical-productive QoL, while showing positive index value in material and social-emotional QoL (the group includes Alytus d. and Ignalina d. mun.). Groups fifth to seventh (Table 3) are designed to represent municipalities with objective QoL imbalances in some two out of three indicators' aggregating groups. Majority of municipalities with two negative aggregated indexes are appointed also with the negative general (considering full indicator list) objective QoL index. All three negative aggregated index values are observed in municipalities that fall into the final eighth group.

Figure 2 reflects (by both (a) and (b) side diagrams) the data from Table 3, i.e. values of objectively measured material, social-emotional and physical-productive QoL indexes, in diagrammatic form. Objectively measured material QoL index values (in horizontal axis of both diagrams) are plotted against objectively measured social-emotional QoL index values (in vertical axis of (a) diagram) and objectively measured physical-productive QoL index values (in vertical axis of (b) diagram).



(a)



(b)

Figure 2. Objectively measured material QoL index in relation with (a) objectively measured social-emotional QoL index and (b) objective physical-productive QoL index, Lithuania municipalities, 2011 (data source Statistics Lithuania 2012)

The bubble size refers to the value of overall objective QoL index (the exact overall objective QoL index value for Druskininkai mun. is provided as a reference for fast comparisons straight in the diagrams). Any single bubble as presenting data of some certain local place is shaded only when objectively measured overall QoL index value is positive; Negative overall objective QoL index values are presented with the empty bubbles (Figure 2).

The position in the two diagrams of a certain single municipality is not changing according to material QoL index value (i.e. in relation to the horizontal axis of the diagrams). The position in relation to the vertical axis is determined by objectively measured social-emotional QoL index value (diagram a) and objectively measured physical-productive QoL index value (diagram b). When looking at the two diagrams in the same time and in the right to left direction one will observe the Lithuania municipalities in the order by decreasing material QoL index value along with the values of social-emotional and physical-productive QoL indexes.

Considering objectively measured QoL context, the most favourable situation for ranked local places as pictured in the above described diagrammatic way is the position in upper right corner of the both diagrams simultaneously (Figure 2). This position is appointed to the municipalities leading the objectively measured QoL ranking with positively balanced material, social-emotional and physical-productive QoL. As it is already described above (Table 3), in the case of Lithuania municipalities analyzed by the 2011 year data only four of them – Neringa, Vilnius c., Birštonas, and Utena d. – would be positioned up-right in both diagrams simultaneously. However, in order to present visually attractive and informative diagrams (Figure 2) the axis are truncated and thus some municipalities (Neringa, Vilnius, c., Birštonas and Palanga c. in particular) with the higher QoL indexes values are not shown here. The extremely high material QoL index value and extremely low physical-productive QoL index value (Table 3) do not appear in the diagrams Mazeikiai d. mun. either. All remaining municipalities with the moderate all three index values are shown in both diagrams.

The densest ones are the lower-left corner of the diagram (a) and the upper-left corner of the diagram (b). It is determined by the fact that the group of municipalities with the negatively balanced material and social-emotional QoL, but positively evaluated physical-productive QoL is biggest; it includes more than 20 municipalities.

Results of various QoL measurements obtained in one or another way always are intended to be publicized, discussed, considered extensively not only by government officials, but by community representatives as well; clear and tangible (since not necessary very huge after the first QoL improvement steps) outcomes must be available immediately. 'Broad levels of community engagement serve to expand feelings of community ownership of the process' (Bussell and Sheldon, 2011), which is very important in planning and implementing QoL improvement initiatives. Simple participation in the process, however 'is not enough to sustain momentum' (Bussell and Sheldon, 2011). Immediate outcomes in

revealed imbalances not only energize the process and further momentum, but they enhance community ownership and the motivation to pursue the effort even further. This tangible connection between visioning, developing quality of life plans, and acting on these plans promotes feelings of accomplishment and success. This support for the process must be further enhanced by broad transparency (Bussell and Sheldon, 2011).

From the QoL measurements done by the set of social indicators local communities could benefit in following ways: measurement results could be used to assess the progress of society or the wellbeing of a community; spotlight issues or trends affecting a particular area or population; describe conditions or problems; highlight issues of importance to a community; simplify complex issues within a big-picture approach; identify trends and future plans; clarify goals; simply communicate data; stimulate discussion about future actions (Briggs, 1998).

Although the research has reached its aims, there were some unavoidable limitations that have to be mentioned here. Since the index values and respective ranking results are very sensitive to applied indexing methods and used indicators' set the results of the research are not unambiguous. Elimination or addition of certain indicators especially those with measurement values ranging widely could significantly change the obtained results. It means that all conclusions are relevant only if the applied measurement framework is considered. Herewith the results are not comparable to other obtained by some another methodology and different indicators' sets.

Conclusions

The theoretical QoL conceptualization is quite general and widely accepted. It presumes that some particular aspect of human life is considered from the QoL conceptual perspective if the selected 'aspect' under consideration is being investigated both from the objective and subjective point of view, adopting respective methodology and measurement instruments. QoL in the local place concept is used to investigate extent by which subjective human needs are fulfilled when these needs fulfilment is determined by or based on objective conditions that are provided in the local environment or reflected in some way in this environment by local place's objective socio-economical and natural environment characteristics.

The conceptual QoL framework used to measure objectively QoL in Lithuania local places – municipalities – is based on assumptions that livability of the local environment is measured by set of material QoL indicators, locally built personal life-abilities of residents are measured by set of physical-productive QoL indicators, and utility of social life in the local place is measured by social-emotional QoL indicators. Objective livability of environment, personal life-abilities and utility of social life (measured by respective group of objective QoL indicators) characterize objective conditions or potential that is provided by the local place for the residents to fulfil their human needs related to living in some certain local place. The index values for each indicator are calculated by

comparing indicator's value in certain municipality to the all investigated municipalities average. Three aggregated indexes are calculated by averaging these index values in material, social-emotional and physical-productive QoL indicator's groups.

As the final results of the research, all investigated Lithuania municipalities are ranked according to overall all indicators aggregating objective QoL index, all ranked municipalities are grouped according to the calculated index values of three certain indicators group aggregating indexes. These groups characterize included municipalities by revealing objectively measured QoL aspects that are measured as being below the average level of all municipalities and thus termed as imbalances in QoL potential. Neringa, Vilnius c., Birstonas and Utena d. municipalities are referred to as well-balanced in all major objective QoL aspects. These municipalities lead the rating. Aggregated index values of material, social-emotional and physical-productive QoL indicators are positive, meaning that positively evaluated, i.e. better developed than average level in Lithuania QoL aspects outweigh the negative ones.

Palanga c. and Druskininkai municipalities are ranked comparably high, in the fourth and fifth positions respectively, but they did not fall into the first above mentioned group of 'well balanced' in the QoL aspects municipalities because negatively evaluated social-emotional QoL outweigh the positive ones and aggregated social-emotional QoL index value is negative.

Similarly, i.e. considering calculated values of three aggregated (i.e. material, social-emotional, physical-productive) indexes, groups of remaining municipalities that are imbalanced only in physical-productive, only in material, in social-emotional and material, in social-emotional and physical-productive, in material and physical-productive, and finally in all three major objective QoL aspects, measured by respective set of indicators that are aggregated in one of the tree aggregating indexes.

These groups present Lithuania municipality profiles that could be used to guide general development policy and be benefiting in other aspects. The common features of the municipalities characterized by the same profile (falling in the same group is objectively measured QoL imbalances in particular single, some two or even all three QoL indicator aggregating components. The view from the aggregated indexes perspective is considered as relevant to highlight QoL aspects that need strategy attention, but this approach is too general to evaluate the specific strategic decisions.

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Objektyvusis gyvenimo kokybės matavimas: Lietuvos savivaldybių atvejis

Santrauka

Gyvenimo kokybės matavimai, pasirenkant tam tikras indikatorių grupes, nėra naujas reiškinys. Tam naudojamos įvairios priemonės, kurios skirtinguose tyrimuose atskleidžia skirtingą gyvenimo kokybės koncepcijos supratimą ir nevienodai paaiškina ją sudarančių elementų svarbą (Noll, 2002). Marans ir Stimson (2011a) teigimu, yra labai daug literatūros, kurioje analizuojama gyvenimo kokybė ir jos matavimai, tačiau nėra vieno modelio ar visaapimančio matavimų rinkinio, kuris būtų priimtinas daugumai tyrėjų ir politikų. Todėl labai daug diskutuojama, kaip vis dėlto pamatuoti gyvenimo kokybę kasdieniame gyvenime.

Ankstesnė konceptuali mokslinė literatūros analizė (Rybakovas, 2011) parodė, jog bendroji gyvenimo kokybės matavimų sistema nėra reikalinga ir konceptualiai netgi neįmanoma tokios išvystyti. Kiekviena socialinė ekonominė sistema turi turėti jos kontekstui taikomą matavimo instrumentą, pabrėžiantį individualias, ne bendrines, tos socialinės ekonominės sistemos charakteristikas.

Straipsnio tikslas – atskleisti empirinius objektyviai matuojamas gyvenimo kokybės Lietuvos savivaldybių vietos lygmenyje profilius. Straipsnyje pristatomi tyrimo, kurio metu pagal parinktą indikatorių sąrašą matuojama gyvenimo kokybė Lietuvos savivaldybėse, rezultatai. Antriniais tyrimo duomenys renkami iš Lietuvos statistikos departamento pateikiamų duomenų. Naudojami 2011 metų duomenys. Indikatoriai parenkami taip, kad atitiktų konceptualų gyvenimo kokybės modelį, integruojantį tris esmines gyvenimo kokybės sudedamąsias (materialiąją, socialinę emocinę, fizinę produktyviąją gyvenimo kokybę). Matuojami tik objektyvieji (t.y. stebimi socialinėje ekonominėje vietos teritorijos aplinkoje) šių gyvenimo kokybės sudedamųjų aspektai.

Mokslinėje literatūroje sutariama, kad gyvenimo kokybė žmogaus gyvenimo konkrečioje vietoje (t.y. lokaloje aplinkoje) aspektu yra apibrėžiama objektyviosiomis tos vietovės socialinėmis, ekonominėmis ir gamtinėmis aplinkos charakteristikomis, kartu analizuojant ir individualius, subjektyvius žmogaus gyvenimo kokybės, siejamas su gyvenamąja teritorija, vertinimus. Tam, kad būtų galima suprasti gyvenimo kokybę konkrečiame vietos lygmenyje, pavyzdžiui, mieste, savivaldybėje ar regione, remiantis Marans ir Stimson (2011a), naudojantis indikatorių rinkiniu, turi būti matuojamos vietos lygmens sąlygos; stebimi tų sąlygų pokyčiai, siekiant įvertinti ar nustatyti, ar jos pasikeitė ir kaip pasikeitė; nustatoma, ar ir kiek minėtos sąlygos pagerėjo ar pablogėjo. Tai apima ir įvertinimą, kokį poveikį daro skirtingos viešosios ir privačios intervencijos, siekiančios pagerinti sąlygas. Šis tyrimas yra nukreiptas į pirminį tikslą – išmatuoti sąlygas dabartiniu momentu.

Indikatorių rinkinys, kuriuo siekiama išmatuoti gyvenimo kokybę vietos lygmenyje, apima platų vietinių gyvenimo sąlygų spektrą. Vietos lygmuo arba bendruomenės gyvenamoji vieta susideda iš gyventojų ir organizacijų, reikalingų gyventojų poreikiams patenkinti. Detalizuojant vietos lygmens viešąją infrastruktūrą, reikia paminėti tokias jos sudėtines dalis (Briggs, 2009; Bagdonienė, Langvinienė, Hopenienė, 2009): gyvenamasis, komercinis,

pramoninis ir administracinis funkciniai elementai, rekreacijos ir socializacijos elementai, kelių, kitų transporto rūšių ir komunikacijos sistemos, viešųjų ir komunalinių paslaugų infrastruktūra, apimanti vandens, elektros ir šilumos energijos tiekimą, taip pat sanitarines paslaugas. Visi šie ir galimai keletas kitų elementų yra svarbūs matuojant objektyviąją gyvenimo kokybę vietos lygmenyje.

Atsižvelgiant į konceptualų modelį, empirinių duomenų paieška buvo vykdoma Lietuvos statistikos departamento Rodiklių duomenų bazėje. Buvo išskirti 39 indikatoriai, turintys privalomą požymį – duomenys pateikiami savivaldybės lygmenyje. 10 indikatorių matuoja materialiąją gyvenimo kokybę, priklausantią nuo vietos lygmens sąlygų. 15 indikatorių skirti matuoti sugyvenimo bendruomenėje socialiniams naudingumui, t.y. objektyviąją socialinę emocinę gyvenimo kokybę. Likusieji 14 indikatorių skirti matuoti asmeniniams įgūdžiams ir gebėjimams, parodantiems objektyvią fizinę ir su produktyvumu susijusią gyvenimo kokybę vietos lygmenyje.

Jei Statistikos departamento bazėje pateikti rodikliai išmatuoti tik absoliučiomis reikšmėmis, indikatorių reikšmės naudotos tyrime buvo perskaiciuotos vienam gyventojui, atsižvelgiant į vidutinį atitinkamų metų gyventojų skaičių (pavyzdžiui, LR Statistikos departamento duomenimis yra pateikiama absoliuti savivaldybių biudžeto išlaidų reikšmė, išreikšta litais, todėl, siekiant tarpusavyje palyginti objektyviuosius rodiklius, ši reikšmė perskaiciuota vienam gyventojui). Santykinės rodiklių reikšmės yra palyginamos su visos Lietuvos vidutine atitinkamo rodiklio reikšmėmis, taip gaunama indeksuota reikšmė, kuri išreiškiama kaip skirtumas nuo 0. Mažesnės už nulį reikšmės rodo, kad konkrečios savivaldybės reikšmė Lietuvos vidurkio nesiekia, didesnė – viršija atitinkama apimtimi, proc.

Laikomasi konceptualios nuostatos, kad apskaičiuojant apibendrinto indekso reikšmes, rodikliams suteikiamas lyginamasis svoris (arba tikėtina sąlyginė jų svarba įtakoja gyvenimo kokybę vietos lygmenyje), nustatomas tolygiai naudojamų indikatorių skaičius, tai yra, remiantis nuostata, kad visi naudojami rodikliai ir atitinkami jais vertinami veiksniai yra vienodai svarbūs vietos gyventojams, jų suvokiamos gyvenimo kokybės prasme. Tai reiškia, kad skaičiuojant indekso reikšmę, turi būti randamas visų naudojamų rodiklių indeksuotų reikšmių vidurkis.

Objektyviai gyvenimo kokybei Lietuvos savivaldybėse išmatuoti buvo sudaryti trys indeksai ir atitinkami reitingai. Pirmasis indeksas agreguoja objektyviai matuojamas materialiosios gyvenimo kokybės indikatoriai, apimančius savivaldybių biudžeto pajamas, išlaidas paslaugoms, ekonomikai, būstams ir komunaliniam ūkiui bei kitus straipsnyje pateikiamus indikatoriai. Antrasis indeksas skirtas įvertinti asmeninius įgūdžius ir gebėjimus, t.y. objektyviai matuojamą fizinę ir su produktyvumu susijusią gyvenimo kokybę. Jame apibendrinami tokie indikatoriai, kaip savivaldybių biudžeto išlaidos sveikatai, sveikatos priežiūros specialistų skaičius, lovų ligoninėse skaičius, gimstamumas ir kiti su žmonių sveikata ir jų darbo produktyvumu susiję indikatoriai. Trečiasis indeksas skirtas įvertinti objektyviąją socialinę emocinę gyvenimo kokybę. Jis apima tokius indikatoriai, kaip savivaldybių biudžeto išlaidos kultūrai, saugumui, laikraščių leidyba, kultūros centrų daliviai ir kt. Ketvirtuoju indeksu yra įvertinimas visų 39 tyrimo naudotų indikatorių vidurkis.

Kaip pagrindinis tyrimo rezultatas, straipsnyje yra pristatomi 8 Lietuvos savivaldybių objektyviosios gyvenimo kokybės profiliai, kurie sudaryti atsižvelgiant į trijų pagrindinius gyvenimo kokybės aspektus apibendrinančių indeksų reikšmes. Tik keturiose savivaldybėse (Neringos, Vilniaus miesto, Birštono ir Utenos rajono) visų trijų apibendrintų indeksų reikšmės yra teigiamos, o tai rodo, kad objektyvioji gyvenimo kokybė čia yra optimaliai balansuojama – apibendrintos sąlygos materialiosios, fizinės produktyviosios ir socialinės emocinės gyvenimo kokybės srityse viršija vidutinį lygį Lietuvoje, tai yra standartinį lygį, kurį sąlygoja vidutinis šalies socialinis ekonominis išsivystymas.

Visose kitose savivaldybėse bent vienoje, dvejose ar visose trijose srityse yra jaučiamas objektyviųjų sąlygų Lietuvos socialinio ekonominio išsivystymo vidurkį atitinkantį gyvenimo kokybei trūkumas. Šių savivaldybių socialinio ekonominio vystymosi strategijose prioritetas turėtų būti skiriamas šiam disbalansui šalinti, tai yra neigiamai įvertintoms sąlygoms gerinti, jų matavimams artinti prie vidutinio lygio šalyje.

Reikšminiai žodžiai: gyvenimo kokybė, vietos savivaldos lygmuo, objektyvieji matavimai, gyvenimo kokybės indeksas, Lietuvos savivaldybės.

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