# HEALTH CARE SYSTEM'S AND HEALTH SELF-EVALUATION OF LATVIA INHABITANTS IN THE CONTEXT OF THE EUROPEAN QUALITY OF LIFE SURVEY (EQLS) OF 2011 AND 2016

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**Abstract.** The quality of the inhabitants of the country is a decisive factor influencing production. At the same time one of the factors characterizing the quality of the inhabitants is their health. Researches of scientists in the last decades have proved mutual interrelation of health of the inhabitants and economic growth: a healthy nation is an important factor of economic growth and vice versa, i.e., the economic growth improves the inhabitants' health improving life quality in total. The subjective evaluation of the life quality supplements the official statistical information. The European Quality of Life Survey (EQLS) is an approved quality supervision and analysis tool that has taken place for the 4th time in 2016 and includes evaluation of the health care system, the inhabitants' awareness of their health situation and mental well-being.

The aim of the article is to assess the changes in separate indicators of health of Latvia society in the context of the European Union countries in the EQLS in 2016 in comparison with the survey in 2011.

To achieve the aim the following tasks were forwarded:

1) to offer insight in the present understanding of the concept of society's health and problems;
2) to analyse the EQLS 2016 data contrasting them with the data in Latvia and the EU in total.

Descriptive and indicative statistical methods for analyses were applied in the research. As informative sources of inhabitants the European Life and Work conditions improvement fond in 2011-2012 and 2016 from the UK Archive, as well as the data of the World Bank, the World Health organization and Latvia Statistical directorate were used.

As confirmed by the data of 2016 according to self-evaluation of respondents in total the healthcare quality in the EU has increased from 6,07 to 6,18 and this increase must be considered as statistically significant. In Latvia statistically insignificant decrease of the quality of the healthcare from 5,13 to 5,01 can be seen (European Foundation for the Improvement of Living and Working Conditions, 2018).

In Latvia the inhabitants' awareness of personal health condition (*In general, how is your health?*) has been evaluated as average while the average showing in the EU – as good.

Latvia respondents the following statements (*how you have been feeling over the last two weeks)* about the last two weeks "I have felt cheerful and in good spirits", "I have felt calm and relaxed", "I have felt active and vigorous", "I woke up feeling fresh and rested", "my daily life has been filled with things that interest me" estimate more positively. At the same time "I have felt lonely" and "I have felt particularly tense" and " I have felt downhearted and depressed " are valued more negatively in 2016 in comparison with 2011, but it is statistically insignificant. However, it gives evidence about the increase of everyday life intensity, tension and stress, unfavourable conditions for mental and psychic health and the demand for immediate reaction.

**Keywords:** *Health, Health indicators, Health care system.*

**JEL code:** I15, F63, P36

## Introduction

In 1979 when receiving the Nobel prize in economics for pioneering research into economic development research with particular consideration of the problems of developing countries Theodore W. Schultz accentuated in his lecture that the decisive factor in production is the people's quality and it is important to make investments in education and health. He also spoke about main opportunities how health could promote the production of economics and growth (The Sveriges Riksbank, 1979). Since 90ies research has proved that health when defining it as life expectancy is equally as important indicator of the labour force quality as education. When considering the growth of economics and health it has been proved that economics improves health and this coherence is valid also at present. Thus, for

example, the report of the OECD Health at a Glance 2017, when evaluating the indicators of the OECD countries, concludes that expenses for health care promote life expectancy but it explains only part of differences in life expectancy of inhabitants of various countries. Alongside with the economic growth and investments of countries in health that on average now accounts for about 9% of GDP of no lesser importance are the social factors and habits determining health (OECD, 2017). Empiric research results show that health care expences of countries is the main life expectancy stimulus in the last decades. Calculations show that the growth of expences for health care by 10% per capita increases the life expectancy by 3,5 months. Taking into consideration the growth of health care expences during the last 20 years the life expectancy has increased by 42,4 months (OECD, 2017).

**Theoretical Aspects of Health and Health Care**

Health depends on investments in the health care system and also outsite it. Biological provision and accessibility of health care services are not sufficient to explain the differences in the health of individuals. Education and personal income highly influence the increase of life expectancy. The rise of the level of education by 10% results in the increase of life expectancy by 3,2 months, but the increase of income by 10% per capita prolongs life expectancy by 2,2 months. The improvement of healthy lifestyle by 10% is linked with 2,6 months increase of life expectancy (with smokers it is 1,6, but less use of alcohol – 1 month) (OECD, 2017). Other health social factors such as expenses, healthy food, unemployment, air pollution – influence the common health conditions less though at the same time they are not insignificant. By ensuring sufficient income people can obtain goods and services that maintain or improve health, however, higher income may mean also longer work periods and greater stress (Fuchs V., 2004). Educated people who are also richer are better informed about opportunities for health improvement and maintenance (Mackenbach J. et al., 2008). Unemployment and bad work conditions influence mental health negatively and create traumatism risks (Bassanini A. & Caroli, E., 2014). Living in antisanitary, unsafe and polluted environment increases risks for illnesses and death (Gibson M. et al., 2011; Deguen S. & Zmirou-Navier D., 2010).

It must be emphasized that the observed connection between life expectancy and explanation of its factors must be considered as causal relationship in both directions, as bad health decreases productivity and influences development of human capital negatively that in its turn results in diminished economic growth. On the contrary, high level of inhabitants' health goes hand in hand with high income level of the country. Bloom, Canning and Sevilla in 2004 using the data of 104 countries proved that increase of each year of life expectancy increases productivity of economics for 4% (Bloom D., Canning D. & Sevilla J., 2004). At the same time health can be not only the result of well-being but also the source of high income that ensures higher labour productivity; when being healthy, people are able to learn and acquire better education. Good health can strengthen stimulus to make accumulation for pensions and increase wealth, at the same time healthy labour force strengthens stimulus for investments in business (Bloom D. & Canning D., 2008).

During the last two decades the positive interconnectedness between health and economic growth has strengthened and mechanisms through which health influences economic growth and reverse causal relationship that economic prosperity promoting better health complicates the description of these relations. Besides, such factors as technological progress and institutional improvements favour both - inhabitants' health and economic growth. All these aspects create problems to theoretical modelling and empiric identification (Bloom D., 2018) and research in this direction is continuing.

However, it is clear that on a macrolevel abstracting from other factors it can be said that a healthier nation guarantees economic development, increase of income and well-being of the country, and vice versa – inhabitants of a welfare country are healthier.

What is the health characterising situation in Latvia?

## Research results and discussion

The main indicators according to which the health situation of inhabitants is valuated is the life expectancy at birth, healthy life years and, by sex and health care expenses from gross domestic product (GDP)). Since gaining independence of Latvia life expectancy at birth of men and women has increased (Table 1), at the same time in Latvia it is comparatively lower than in the EU-28 countries on average where in 2017 life expectancy at birth on average is 80,9 years - 78,3 years for men and 78,3 years for women (Eurostat, 2019, b).

Table 1

**Life expectancy at birth, by sex in Latvia**

| | Total | Males | Females |
|---|---|---|---|
| **1990** | 69,5 | 64,2 | 74,6 |
| **2000** | 70,2 | 64,6 | 75,8 |
| **2010** | 73,1 | 67,9 | 77,9 |
| **2011** | 73,7 | 68,6 | 78,5 |
| **2016** | 74,8 | 69,8 | 79,4 |
| **2017** | 74,8 | 69,8 | 79,6 |
| **2018** | 75,0 | 70,0 | 79,6 |

*Source: author's construction based on* Central Statistical Bureau of Latvia, 2019

Another indicator that characterizes health – healthy life years and life expectancy at birth, males, 2017 was 50,6 years in contrast to EU-28 average – 63,5years, females in Latvia - 52,2 years in contrast to EU-28 average – 64,0 years. It is the lowest showing of both male and female within the EU group of countries. It means that there is a long and difficult way for Latvia to go to improve the health and healthcare system (Eurostat, 2019, a).

An essential indicator that characterizes the role of the state in the improvement of the health care system is government expenditure for health. How much a country spends on health care over time relative to spending on all other goods and services in the economy can be down, to both growth in health spending itself as well as how well the economy is performing overall. Government expenditure for health has increased for most countries, albeit at a slower rate than gross domestic product (GDP) (Table 2).

Table 2

**Gross domestic product and Domestic general government health expenditure per capita of EU countries. PPP changes in % in 2016 in comparison with 2011**

| Country Code | Changes GDP, PPP (current international $), 2016/2011, % | Changes Domestic general government health expenditure per capita, PPP, 2016/2011, % | Country Code | Changes GDP, PPP (current international $), 2016/2011, % | Changes, Domestic general government health expenditure per capita, PPP, 2016/2011, % |
|---|---|---|---|---|---|
| GRC | 16,2 | -11,1 | BEL | 57,8 | 15,1 |
| CYP | 14,4 | -8,0 | AUT | 7,4 | 18,3 |
| HRV | 24,4 | 0,9 | CZE | 32,6 | 20,9 |
| ITA | 1,5 | 3,2 | DEU | 14,2 | 21,4 |
| NLD | 22,3 | 6,5 | POL | 30,7 | 22,9 |
| PRT | 16,9 | 6,9 | SVK | 34,1 | 23,3 |
| ESP | 14,2 | 7,8 | FRA | 10,2 | 23,7 |
| LUX | 25,9 | 9,5 | LVA | 21,4 | 25,0 |
| IRL | 4,3 | 10,2 | LTU | 15,9 | 25,3 |
| SVN | 14,5 | 12,1 | GBR | 33,3 | 28,5 |
| FIN | 7,5 | 12,3 | BGR | 12,0 | 32,1 |
| DNK | 12,3 | 13,5 | MLT | 15,2 | 40,0 |

| | | | | | |
|---|---|---|---|---|---|
| HUN | 18,1 | 13,5 | EST | 19,6 | 40,1 |
| SWE | 17,6 | 14,2 | ROU | 16,7 | 43,1 |

*Source: author's construction based on* The World Bank, 2019, c.

Estimating GDP per capita PPP (current international $) in 2016 in comparison with 2011 it can be concluded that smaller or greater growth can be seen in all EU countries. However, it cannot be said about Domestic general government expenditure per capita PPP (current international $). There is a relative decrease in , e.g., Greece and Cyprus, and a relatively greater increase in comparison with Changes GDP, PPP, e.g., in Italy, Ireland, Finland, Denmark, Austria, Germany, France, Latvia, Lithuania, Bulgaria, Malta, Estonia and Romania. When calculating mutual correlation of both showings in the EU countries in total, the showings make positive, statistically significant close correlation (Table 3), i.e., if at an average GDP increases also Domestic general government expenditure per capita, PPP (current international $) grows, though the closeness of the correlation in 2016 is weakening.

Table 3

**GDP per capita, PPP (current international $) and Domestic general government health expenditure per capita, PPP (current international $) correlations**

| Indicators | | Domestic general government health expenditure per capita, PPP (current international $), 2011 | Domestic general government health expenditure per capita, PPP (current international $), 2016 |
|---|---|---|---|
| GDP per capita, PPP (current international $) | Spearman's rho Correlation Coefficient | ,945** | ,926** |
| | Sig. (2-tailed) | ,000 | ,000 |
| | N | 28 | 28 |

Though the growing GDP in total means also an increase of government expenditure for health just in Eastern European countries more rapid positive changes in government health care financing can be observed. It can be explained by the necessity of these countries to bring the quality of the health care system closer to the developed EU countries. In Europe there exist not only different health care systems but each system has its historical development and experience within the framework of cooperation with private service providers. There are two main kinds of health care systems - on insurance and on tax based integrated health care systems.

According to the data of the WHO domestic general government health expenditure (%of GDP) in 2016 equals 3,41% that falls behind the OECD countries (10,05%) as well as the average level of European countries – 7,92%. It must be added that in Latvia this showing is lower than in Estonia (5,04%) and Lithuania (4,3%) (The World Bank, 2019, a).

According to the data of the OECD summing up Government Compulsory and Voluntary/Out-of-pocket, health expenditure in Latvia as a share of GDP, 2016 makes 5,75 that is less than in Lithuania and Estonia (6,7%) (OECD, 2017).

Beside the percentage evaluation the domestic general government health expenditure per capita, a more understandable evaluation is PPP (current international $) that in Latvia in 2016 is 868,49 PPP in contrast to Estonia's 1499,0 and Lithuania's 1297,0 PPP. In the European Union in 2016 this showing is 3,040,05, OECD – 3,998,70 (The World Bank, 2019, b).

According to the OECD data summing Government/Compulsory and Voluntary? Out-of pocket health expenditure per capita in Latvia 2016 makes 1466 PPP, in Lithuania – 1970 PPP, and in Estonia – 1989 PPP (OECD, 2017).

When verifying the existance of correlation between Domestic general government health expenditure per capita, PPP (current international $) and changes in inhabitants' estimations the EQLS in the EU countries (2016 average estimation minus 2011 average estimation) the correlation is weak, in fact unimportant (Table 4).

Table 4

**Correlations between changes of Domestic general government health expenditure per capita and changes of estimation of health care**

| Indicators | | Changes of estimation of health care (2016 average estimation - 2011 average estimation) |
|---|---|---|
| Changes of Domestic general government health expenditure per capita (2016 average estimation - 2011 average estimation) | Spearman's rho Correlation Coefficient | -,168 |
| | Sig. (2-tailed) | ,393 |
| | N | 28 |

It can be explained by differences in subjective and objective (official statistics) estimations in many areas, health care included. The proof is given also by Latvia research in 2018 about patients' satisfaction with the quality of health care services (Ministry of Health, 2019). It was found that inhabitants when estimating the quality of the received services consider them as separate episodes but they do not value them in the context of the whole system. At the same time, when valuing the state offered health care in total probably the existing in the society opinion about the health care system is expressed that in the last decade is rather negative.

Since gaining independence considerable changes and reforms have taken place in Latvia health care system. The accessible results of the World Bank research confirm the necessity to continue the reforms started in the previous years that are oriented to the development of the quality insurance system, reform of the financial management of health care, development of integrated health management and information system, gradual investments in the infrastructure of health care and human resources (Ministry of Health, 2018).

Beside the official statistical showings that characterize the situation of Latvia inhabitants' situation more or less objectively there exists a subjective evaluation of health and health care situation, e.g., the above mentioned Research of the patients' satisfaction with the quality of health care services presented in 21.01.2019. In total more than half of respondents in Latvia are satisfied. At the same time, the patients' satisfaction with concrete services is higher. The research results are used to continue the accessibility and quality of health care services (Ministry of Health, 2019).

The data of the European quality of life survey (EQLS) allow to compare the dynamics of the inhabitants' opinions of health and health care services.

In the EU on average in 2016 in comparison with 2011 the evaluation of health care services has increased from 6,07 to 6,19 points within the system of 10 points. However, as mentioned above, different social economic situations in the countries determine different evaluations of health and health care systems.

In such countries as Austria, Belgium, Denmark, Finland, Luxembourg, Malta, the Netherlands and Sweden the subjective evaluation of the quality of health care services fluctuates between 7,0 to 8,0 points, while in Greece, Bulgaria, Slovakia, Poland both in 2011 and 2016 it has not exceeded 5,0 points (Table 5).

Table 5

**Evaluation of the quality of health services (within 10 point system)**

| Country code | 2011 | 2016 | Country code | 2011 | 2016 |
|---|---|---|---|---|---|
| AUT | 8,01 | 7,93 | EST | 5,71 | 5,91 |
| BEL | 7,76 | 7,62 | CYP | 5,41 | 5,70 |

| | | | | | |
|---|---|---|---|---|---|
| LUX | 7,46 | 7,49 | ITA | 5,49 | 5,57 |
| FIN | 7,12 | 7,42 | HRV | 5,43 | 5,46 |
| DNK | 7,49 | 7,27 | PRT | 5,52 | 5,44 |
| SWE | 7,35 | 7,26 | LTU | 5,11 | 5,43 |
| MLT | 7,21 | 7,25 | ROU | 4,72 | 5,34 |
| NLD | 7,19 | 7,07 | HUN | 5,12 | 5,33 |
| FRA | 6,86 | 7,06 | IRL | 4,96 | 5,28 |
| ESP | 7,02 | 6,81 | LVA | 5,13 | 5,01 |
| GBR | 7,01 | 6,79 | SVK | 4,84 | 4,99 |
| DEU | 6,64 | 6,58 | POL | 4,67 | 4,91 |
| CZE | 6,51 | 6,42 | GRC | 4,85 | 4,89 |
| SVN | 6,46 | 6,05 | BGR | 4,48 | 4,56 |

*Source: author's construction based on European Foundation for the Improvement of Living and Working Conditions, 2018*

Thus, the quality of health services according to the opinion of inhabitants has statistically significantly diminished in Belgium (Kolmogorov Smirnov Z = -2,649, p = 0,008), Denmark (Z= -3,399, p =0,001), Spain (Z=-4,268, p=0,000), the Netherlands (Z=-3,610, p=0,000) Slovenia (Z= -5,380, p= 0,000) and the UK (Z=-4,497, p=0,000). At the same time statistically significant growth of estimation has been stated in Cyprus (Z = -3,473, p = 0,001), Lithuania (Z = 3,763, p = 0,000), Estonia (Z= -2,754, p = 0,006), Poland (Z= -4,161, p =0,000), Romania (Z=-8,280, p =0,000). The most rapid improvement of the quality of health services has been noticed in Romania – from 4,72 points in 2011-2012 to 5,34 points in 2016. Comparing the data of the estimation of the quality of health services by Latv society in 2016 and 2011 it must be concluded that the estimation has lowered statistically insignificantly (Z = -1,310, p=0,190).

Analysis of the answers to the question "In general, would you say your health is …" (1 – very good, 2 – good, 3 – fair, 4 – bad, 5 – very bad) the evaluation of Latvia inhabitants approaches more to fair (2,83), it has improved in comparison with 2011 for 0,04 points. A similar situation is seen also in Lithuania (2,85 points) and Estonia (2,73 points), the conscious evaluation of the health situation average in the EU is 2,32 points, approaching more to – good (Table 6).

Table 6

**Average answers to the question "In general, would you say your health is…" (1 – very good, 2 – good, 3 – fair, 4 – bad, 5 - very bad) in the EU countries 2011 and 2016**

| Country code | 2011 | 2016 | Country code | 2011 | 2016 |
|---|---|---|---|---|---|
| AUT | 2,02 | 2,03 | IRL | 1,94 | 1,83 |
| BEL | 2,27 | 2,24 | ITA | 2,21 | 2,20 |
| BGR | 2,49 | 2,40 | LTU | 2,92 | 2,85 |
| CYP | 2,03 | 2,10 | LUX | 2,17 | 2,14 |
| CZE | 2,33 | 2,32 | LVA | 2,87 | 2,83 |
| DEU | 2,34 | 2,30 | MLT | 2,17 | 2,24 |
| DNK | 2,19 | 2,16 | NLD | 2,30 | 2,22 |
| EST | 2,79 | 2,73 | POL | 2,55 | 2,52 |
| GRC | 1,96 | 1,95 | PRT | 2,63 | 2,52 |
| ESP | 2,14 | 2,14 | ROU | 2,74 | 2,66 |
| FIN | 2,33 | 2,31 | SWE | 2,18 | 2,16 |
| FRA | 2,19 | 2,14 | SVN | 2,30 | 2,37 |
| HRV | 2,27 | 2,41 | SVK | 2,47 | 2,46 |
| HUN | 2,49 | 2,55 | GBR | 2,30 | 2,23 |

*Source: author's construction based on European Foundation for the Improvement of Living and Working Conditions, 2018*

Statistically significant improvement in estimation of health awareness has been displayed in Bulgaria (Z=1,358, p=0,050), Croatia (Z=1,834, p=0,002), Portugal (Z=1,997, p=0,001) and the United Kingdom (Z=1,526, p=0,019). Changes in estimation by inhabitants of other countries in one or other direction are not statistically significant nor essential, the average changes in the group of the EU countries (Z= 0,534, p = 0,938) are not essential.

Existance of chronic physical or mental health problems (Do you have any chronic (long-standing) physical or mental health problem, illness or disability?) has been indicated by 29,3% respondents in the EU countries, in Latvia by 30,0% where this estimation actually has not changed since 2011. 32,2% of respondents characterize this health problem or limitations caused by invalidity as strong.

Health and well-being that can be characterized as positive emotions belong to the most significant human life quality indicators and needs. Both notions are mutually interconnected and influence each other in physical and mental areas of a person's development. A person can consider himself/herself physically and mentally healthy if he/she feels harmony between all areas of self-development (physical, mental, social) and opportunities to reach his/her defined aims in the concrete life conditions (Hurrelmann K. & Razum O., 2012). The European Quality of Life Survey includes assertions that give opportunities to estimate well-being changes in the research periods.

According to the data in the EU countries in total the average changes of the evaluation of the statement "I have felt cheerful and in good spirits", "I have felt calm and relaxed", "I have felt active and vigorous", "I woke up feeling fresh and rested" and "My daily life has been filled with things that interest me" in the period under discussion can be estimated as positive (1 - All of the time, 2 - Most of the time, 3 - More than half of the time, 4 - Less than half of the time, 5 - Some of the time, 6 - At no time). Though the average estimation has diminished the changes have not been radical and can be considered as statistically insignificant. (Table 7).

Table 7

**Changes of estimation of the positive emotional state in the EU countries**

| Indicators | I have felt cheerful and in good spirits | I have felt calm and relaxed | I have felt active and vigorous | I woke up feeling fresh and rested | My daily life has been filled with things that interest me |
|---|---|---|---|---|---|
| EU 2011 Mean | 2,79 | 2,93 | 2,97 | 3,14 | 2,96 |
| EU 2016 Mean | 2,75 | 2,91 | 2,95 | 3,12 | 2,88 |
| Kolmogorov Smirnov Z | 0,365 | 0,758 | 0,280 | 1,030 | 0,658 |
| Sig (2-tailed) | 0,999 | 0,614 | 1,000 | 0,239 | 0,779 |

In various countries the estimation certainly was different and statistically significant positive differences of statements, e.g., "I have felt cheerful and in good spirits" have been shown in Greece (Z = 1,670, p =0,008), Croatia (Z=1,856, p= 0,002), but in the negative direction in Italy (Z=2,603, p=0,000). In the evaluation of the statement "I have felt calm and relaxed" statistically significant positive differences in 2011 and 2016 surveys have been expressed in Greece (Z=2,039, p=0,000) and France (Z=1,701, p=0,006), but negative in Cyprus (Z=2,073, p=0,000) and Italy (Z=2,328, p=0,000).

When evaluating the estimation of "I have felt active and vigorous" it must be concluded that the evaluation of this concrete statement has significantly improved in Ireland (Z=1,571, p=0,014), but worsened in Cyprus (Z=3,931, p= 0,000) and Italy (Z=2,738, p=0,000), Croatia (Z=1,731, p=0,005). Similar is the situation with the evaluation of the statement "I woke up feeling fresh and rested" that has statistically significantly worsened in Cyprus (Z=3,442, p= 0,000) and Italy (Z=2,014, p=0,001,while the evaluation has improved statistically significantly in Croatia (Z=1,435, p=0,032 and Ireland (Z=2,189, p= 0,000).

The above mentioned points out countries in which the positive emotional state has considerably diminished such as Cyprus, Greece where Changes Domestic general government expenditure per capita, PPP. 2016/2011, % has decreased. The list is supplemented by Italy, sometimes Croatia whose Changes Domestic general government health expenditure per capita, PPP, 2016/2011, % is one of the lowest In the EU countries. (Table 2).

In Europe there are differences in unequality in the health area that are connected with the social economic situation of inhabitants (Mackenbach, 2008, 2017). The material life conditions determine health by influencing the quality of individual development, family life and interchange as well as the environment of the society. The material conditions create differences in psychosocial stress. This unequality can be diminished by widening education opportunities, improving distribution of income, activities connected with health or access to health care, and the countries are already doing it.

However, undeniably beside the above mentioned activities estimations of the inhabitants of each country are determined by geopolitical environment and events, e.g., the crisis of the migration flow in Europe that was especially hard in Southeuropean countries.

The subjective estimation of the positive emotional state by inhabitants in Latvia when comparing the data of 2016 and 2011 has not essentially changed though it has lowered by some tenths of the point (Table 8) and it must be positively marked.

Table 8

**Changes of the positive emotional state in Latvia**

| Indicators | | I have felt cheerful and in good spirits | I have felt calm and relaxed | I have felt active and vigorous | I woke up feeling fresh and rested | My daily life has been filled with things that interest me |
|---|---|---|---|---|---|---|
| Latvia 2011 | Mean | 3,21 | 3,31 | 3,28 | 3,32 | 3,20 |
| Latvia 2016 | Mean | 3,10 | 3,24 | 3,21 | 3,28 | 3,04 |
| Kolmogorov-Smirnov Z | | 0,907 | 0,527 | 0,603 | 0,400 | 1,28 |
| Sig. (2-tailed) | | 0,383 | 0,944 | 0,860 | 0,997 | 0,075 |

More essential but not statistically significant (p=0,075), changes of the positive emotional estimation are shown by the evaluation of the statement "My daily life has been filled with things that interest me" that in the EU countries in total has changed only by 0,08 points. The estimation has increased statistically significantly in Hungary (Z=1,447, p=0,030), The Netherlands (Z=1,952, p=0,001), Slovenia (Z=2,444, p =0,000) and the UK (Z=1,458, p=0,028), but diminished in Croatia (Z=2,183, p =0,000), Italy (Z=1,877, p=0,002).

When evaluating the changes in estimation of the negative emotional state of the statements "I have felt particularly tense", "I have felt lonely" it must be concluded that insignificant increase of the estimation can be noticed, while at the same time the estimation of the statement " I have felt downhearted and depressed" in the EU on average shows statistically significant worsening (p = 0,013) that can be considered negative as it points to strengthening of the negative emotional state (Table 9).

Table 9

**Changes of the negative emotional state in the EU on average and in Latvia ***

| Indicators | I have felt particularly tense | I have felt lonely | I have felt downhearted and depressed |
|---|---|---|---|
| EU 2011 Mean | 4,47 | 5,06 | 5,01 |
| EU 2016 Mean | 4,49 | 5,09 | 5,03 |
| Kolmogorov Smirnov Z | 0,766 | 1,053 | 1,588 |
| Sig. (2-tailed) | 0,600 | 0,217 | 0,013 |
| Latvia 2011 Mean | 4,25 | 4,97 | 4,76 |
| Latvia 2016 Mean | 4,35 | 5,04 | 4,88 |
| Kolmogorov Smirnov Z | 1,986 | 1,668 | 2,377 |
| Sig. (2-tailed) | 0,001 | 0,008 | 0, 000 |

**Answers to the statement:1 - All of the time, 2 - Most of the time, 3 - More than half of the time, 4 - Less than half of the time, 5 - Some of the time, 6 - At no time*

A similar strengthening of the negative emotional state has been revealed by the answers of inhabitants of Latvia, the more so that the estimations in 2016 and 2011 are statistically significant. They point to a special tension caused by various factors, sense of loneliness, gloomy and depressed mood that for some of the inhabitants can turn into depression by worsening of the physical and mental health, thus increasing the amount of finances for prevention and treatment of the consequences.

**Conclusions, proposals, recommendations**

1. The researches carried out in the last 40 years have proved that correlation between the life expectancy and the factors that explain it must be valued as causal relationship in both directions: health of inhabitants is a decisive factor of economic development and vice versa, the economic growth of the country improves health of the inhabitants, the life quality of inhabitants in total.
2. The main indicators that characterize the situation of the inhabitants of a country are life expectancy at birth, healthy life years and by sex and health care expenses from the gross domestic product (GDP).
3. Since gaining independence such indicators as life expectancy at birth, healthy life years and life expectancy at birth of males and females have increased, however, they are comparatively lower than average in the EU-28 countries and one of the lowest among the EU countries.
4. One of the most essential indicators that characterizes the role of the state in the improvement of the health care system is government expenditure for health. After the period of crises gross domestic product has increased practically in all EU countries and there is a close correlation between the gross domestic product and the domestic general government health expenditure per capita, PPP both in 2016 and 2011, i.e., the larger is the GDP, the larger is the domestic general government health expenditure per capita, PPP. However, there exist differences among countries. In Eastern European countries, Latvia included, more rapid positive changes in the state financed health care can be observed that are caused by the necessity to advance the quality of the health care systems closer to those of the developed EU countries. Nevertheless, the domestic general government health expenditure in Latvia both in % and moneywise per capita in 2016 falls behind the indicators of the greater part of the EU as well as the OECD countries.
5. There practically does not exist connection between the changes of the domestic general government health expenditure per capita, PPP (current international $) and changes of the evaluation of the health care in the EQLS 2016-2011 in the EU countries that can be explained by differences in the inhabitants' subjective estimation and the official statistics. The inhabitants do not evaluate health care in the context of the whole system and base their

opinions on long-term experiences. The five year period is also too short for the state activities to become "visible" for the inhabitants.

6. The subjective health and health care situation of inhabitants in Latvia in comparison with other EU countries is characterized by the European life quality survey (EQLS). In total in the EU countries in 2016 the average estimation of health care services in the 10 point system has increased from 6,07 to 6,18 points, however, the diverse social economic situation in the countries determine different health and health care evaluation. Considerably higher (7 – 8 points) health is evaluated in developed Wester European countries, a lower evaluation (4 – 5 points) in Eastern European countries. In each of the groups there are countries in which the evaluation has increased or decreased. The evaluation of the quality of health services in Latvia in 2016 in comparison with the results of 2011 has decreased statistically insignificantly.
7. The estimation of the conscious state of health of Latvia inhabitants correspond to fair ("In general, would you say your health is ..."), while the average of the EU inhabitants consider their conscious state of health as good.
8. During the five years of research the proportion of chronic physical or mental problems or invalidity in the EU on average and in Latvia has not changed.
9. The changes in estimations of the statements that characterize well-being "I have felt cheerful and in good spirits", "I have felt calm and relaxed", "I have felt active and vigorous", "I woke up feeling fresh and rested" and "My daily life has been filled with things that interest me", in the EU in total show insignificant positive movement. At the same time more noticeable are some South European countries in which the positive emotional state has essentially lowered and it, undeniably is connected with the political situation and events in the Near East and African countries that cause crisis of illegal migration, that in its turn influenced the politics, the economic development and the mood of inhabitants in a number of the EU countries. The evaluation of the subjective positive emotional state of inhabitants in Latvia though showing some positive tendences essentially has not changed.
10. In the EU countries changes in evaluation the negative emotional state at an average ("I have felt particularly tense, " I have felt lonely") are insignificant, but the evaluation of the statement "I have felt downhearted and depressed" reveal statistically significant lowering that can be marked as negative as it points to increase of the negative emotional state. It exists also in Latvia. Such factors as psychological tension, sense of loneliness, gloomy and depressed mood as a psychosomatic factor worsen physical and mental health. It points to the necessity for educational activities to improve physical and mental health of the society, insuring of duly access to psychological help.

**Bibliography**

Bassanini, A., Caroli, E., 2014. *Is Work Bad for Health? The Role of Constraint Versus Choice*. IZA Discussion Paper No. 7891. [Online] Available at: http://repec.iza.org/dp7891.pdf [Accessed 22 July 2019].

Bloom, D.E., Canning, D., Sevilla, J., 2004. The effect of health on economic growth: a production function approach. *World Development.* 32(1), 1–13.

Bloom, D.E., Canning, D. 2008. *Population Heaalth and Economic Growth*. Working paper No. 24. 2008. The International Bank for Reconstruction and Development. The World Bank. [Online] Available at: http://siteresources.worldbank.org/EXTPREMNET/Resources/489960-1338997241035/Growth_Commission_Working_Paper_24_Population_Health_Economic_Growth.pdf.

[Accessed 23 July 2019].

Bloom, D. E., 2018. *Health and Economic Growth*. IZA DP No. 11939 NOVEMBER 2018. [Online] Available at: http://ftp.iza.org/dp11939.pdf. [Accessed 28 July 2019].

Central Statistical Bureau of Latvia, 2019. Database. *Average life expectancy at birth (years)*. [Online] Available at: http://data1.csb.gov.lv/pxweb/en/iedz/iedz__muza_ilg/PMG010.px/. [Accessed 15 July 2019].

Deguen, S., Zmirou-Navier, D., 2010. Social inequalities resulting from health risks related to ambient air quality – a European review. *European Journal of Public Health*, 20(1), 27–35.

European Foundation for the Improvement of Living and Working Conditions, 2018. European Quality of Life Survey 2016. EQLS, 2016 Data File. UK Data Archive. SN: 7348 European Quality of Life Survey Integradet Data File, 2003-2016 usage number 125185, usage title: Changes in the quality of life in Latvia and EU countries. [Accessed 04 April 2018].

Eurostat, 2019, a. Databasis. *Healthy life years and life expectancy at birth, by sex*. [Online] Available at: https://ec.europa.eu/eurostat/databrowser/view/tps00150/default/table?lang=en). [Accessed 15. August 2019].

Eurostat, 2019, b. Databasis. *Life expectancy at birth by sex*. [Online] Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_03_10/default/table?lang=en. [Accessed 15. August 2019].

Fuchs, V., 2004. Reflections on the Socio-economic Correlates of Health, *Journal of Health Economics*, 23(4), 653-661.

Gibson, M., Petticrew, M., Bambra, C., Sowden, A.J., Wright, K.E., Whitehead, M., (2011), Housing and Health Inequalities: A Synthesis of Systematic Reviews of Interventions Aimed at Different Pathways Linking Housing and Health. *Health and Place*, 17, 175-184.

Hurrelmann, K., Razum, O., 2012. Handbuch Gesundheits-wissenschaften. 5. Aufl. Weinheim und Basel: Beltz Juventa Verlag.

Mackenbach, J.P., Stirbu, I., Roskam, A.-J.R., Schaap, M.M., Menvielle, G., Leinsalu, M., Kunst, A.E., 2008. Socioeconomic Inequalities in Health in 22 European Countries. *The New England Journal of Medicine*, 358, 2468-2481.

Mackenbach J.P., Bopp, M., Deboosere, P., Kovacs, K., Leinsalu, M., Martikainen, P., Menvielle, G., Regidor, E., Gelder, R., 2017. Determinants of the magnitude of socioeconomic inequalities in mortality: A study of 17 European countries. *Health & Place*. 47, 44-53.

Ministry of Health, 2018. Report of the working group on the provision of publicly funded health care services in public, municipal and private health care institutions, 02.07.18.[Online] Available at: http://tap.mk.gov.lv/doc/2018_07/VMzin_020718.1270.docx. [Accessed 15 August 2019].

Ministry of Health, 2019. *Current events.* [Online] Available at: http://www.vm.gov.lv/lv/aktualitates/preses_relizes/5912_petijums_pacienti_augstu_verteveselibas_aprupes_pakalpojumu/. [Accessed 15 August 2019].

OECD, 2017. *Health at a Glance 2017. OECD Indicators*. OECD Publishing, Paris.

Sharma, R. *Health and economic growth: Evidence from dynamic panel data of 143 years. October 17, 2018.* [Online] Available at: https://doi.org/10.1371/journal.pone.0204940. [Accessed 18 August 2019].

The Sveriges Riksbank, 1979. *Prize in Economic Sciences in Memory of Alfred Nobel 1979*. [Online] Available at: https://www.nobelprize.org/prizes/economic-sciences/1979/summary/. [Accessed 24 July 2019].

The World Bank, 2019, a. Data Bank. *Domestic general government health expenditure (% of GDP*). [Online] Available at: https://data.worldbank.org/indicator/SH.XPD.GHED.GD.ZS). [Accessed 15 August 2019].

The World Bank, 2019, b. Data Bank. *Domestic general government health expenditure per capita, PPP (current international $* [Online] Available at: https://data.worldbank.org/indicator/SH.XPD.GHED.PP.CD. [Accessed 15 August 2019].

The World Bank, 2019, c. Data Bank. *World Development Indicators*. [Online] Available at: https://databank.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG/1ff4a498/Popular-Indicators#. [Accessed 15 August 2019].