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NATIONAL HEALTH AS DETERMINANT OF SUSTAINABLE DEVELOPMENT OF SOCIETY

Monograph

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POPULATION HEALTH AS A DETERMINANT OF THE LEVEL OF REGIONAL DEVELOPMENT: EXAMPLES OF MARKETING PROGRAMS TO SUPPORT A HEALTHY LIFESTYLE

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Abstract. The author's research focuses on the analysis of the concept of public health and indicators of regional health. They use semantic analysis for the research of key concepts of regional health. The authors describe archetypes of ways of healthy regional development. They continue with the key actors of the region's healthy development management system. The classification of business entities according to their impact on the region is given. Examples of implemented marketing programs to promote a healthy lifestyle in the regions of Ukraine are summarized.

Key words: health indicators, semantic analysis, regional entities, healthy lifestyle promotion.

The state of health of the population is undoubtedly one of the leading national, regional, and local well-being indicators. This parameter is a fundamental component of human capital – an important indicator of global competitiveness. It is a property without the preservation and reproduction of which each individual cannot realize his/her potential in various socioeconomic life spheres. Naturally, a high level of health ensures an adequate level of quality of life. Along with the terms "public health" and "community health", the term "population health" is directly related to the condition and characteristics of individuals or small groups of individuals. This term is the starting point for further generalization and comprehensive analysis of the regional level of health. The effectiveness of public health measures requires comprehensive attention to the social, environmental, and medical determinants of health. Undoubtedly, promoting a healthy lifestyle, social cohesion, and interaction to solve common problems play an important role.

Determinants of health are those that directly or indirectly affect the current state of the individual, the formation of characteristics of his/her health, attitude to a healthy lifestyle, and the possibility of improving health and treatment. Depending on the direction of the determinants, they can be endogenous:

- gender (women care more about their health than men);
- education (educated people are more aware of various aspects of healthy behaviour and more motivated to maintain their health in good condition);
- other individual characteristics of each person;

exogenous:

- economic aspect (availability of health care services for the majority of the population, working conditions, income and so on);

- social aspect (social infrastructure, communication in the region);

mixed (cultural features of life, living conditions, food security in the country and the availability of a balanced diet and so on).

There is a sufficient amount of research in the scientific literature to ensure a high level of health in the population, in which the term "health" has its interpretations (Table 1).

Table 1. Interpretation of the concept of "population health" by different scientists

Authors	Concept definition
Shshpanov D. G. [1]	Viability of the organism, the ability to maintain physiological and psychological balance, to realize the socioeconomic potential in space and time.
Kindig, D., Stoddart G. [2]	The resulting health indicator of a group of individuals, including the distribution of this indicator in a given group, is usually limited to geographical regions (nation, community). However, they can be applied to describe individuals among workers, ethnic groups, people with disabilities, older people, etc.
Stoto M. A. [3]	A paradigm that takes into account a wide range of factors that determine the state of health of the individual. It recognizes the shared responsibility for the health of the population of a particular area with diffusion.
Diez Roux A. V. [4]	The conceptual approach to understanding drivers of population health formation.
Sharfstein J. M. [5]	A paradigm that examines the health of a particular population based on income, educational disparities, health care systems, and other disparities.
Last J. M. [6]	A condition that depends on physical, biological, behavioural, social, cultural, economic, and other factors

It is important to note that many scientific papers link the health indicators of the population of a particular area with territorial development [7], which are fundamental in the interpretation of the region as prosperous. In a study [8], the authors use simulations to determine the degree of relationship between public health, foreign direct investment, and economic growth. They reveal interesting long-term correlations with the substantiation of the interaction between the studied indicators. Describing the regional impact, one cannot avoid the divergent economic parameters of society's development. Thus, in [9] the author argues about the relationship between the level of health of many countries and the volume of trade relations. There are also studies of public health areas, such as the regional health care system's effectiveness and its impact on various components of socio-economic development of the territory [10]. The work [11] is devoted to the paradigm of analysis and calculation of grouped risks to public health, which the authors call the main category of security in the region. The paper [12] considers a set of social indicators, including population health indicators for several countries in the European region. In [13], the authors determined the strength of the relationship between social and economic parameters of selected countries' welfare while calculating the complex indicator. Emphasis is placed on the region's environmental friendliness as a key component in shaping the sustainability of local health. Some studies have shown that health indicators are critically negatively affected by various economic crises, including the current COVID-19 pandemic in many parts of the world [14-17].

Despite the availability of comprehensive research in public health, there is still a lack of definitions and descriptions of the fullness of a related economic concept – regional health. To see the difference between public health and regional health concepts, we will construct semantic spaces of these concepts. The semantic differential technique is a combination of the method of controlled associations and scaling procedures. This method is useful for estimating measurable concept objects on bipolar degree scales. Assessments of concepts on individual scales may correlate with each other. With the help of factor analysis, it is possible to distinguish subgroups whose scales are strongly correlated with each other. Assessing the meaning of a concept on such a scale makes it possible to place it at a point in the semantic space. The quantitative data obtained during the construction of the semantic differential can be displayed in the form of a semantic profile of the studied concept, which has a broken line form. For the most part, a three-factor model is

used, based on several factors that can be represented through the concepts of "Evaluation", "Strength", "Activity". This point's position can be characterized by two features: the direction from the origin to the origin. Several iterations of the authors' analysis provided the following graphical results of studying the above concepts (Fig. 1-2). To clarify the proximity and identity of some characteristics related to public health, the authors made a test comparison using a semantic differential for comparable indicators, which allows together with the generalization of existing approaches to determining the territorial state of health [18-20] to form a generalized concept of regional health and healthy regional development.

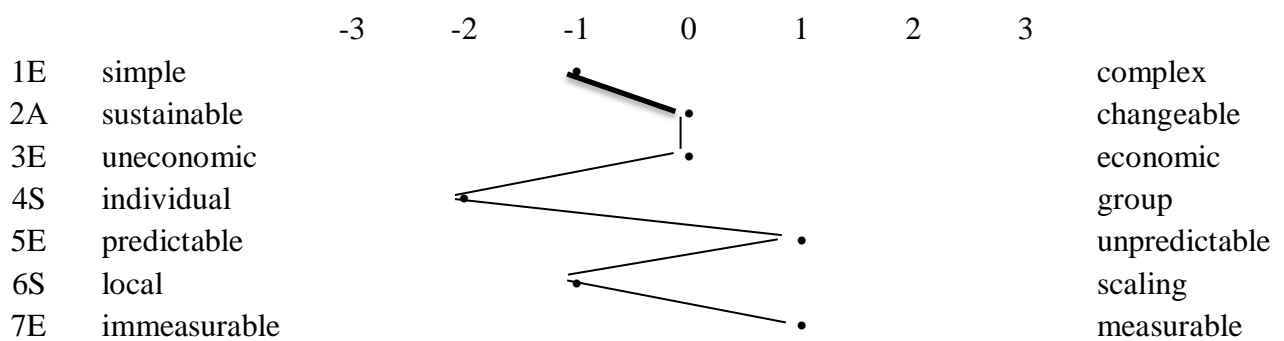


Fig. 1. Evaluation of the concept of "population health" using a semantic differential

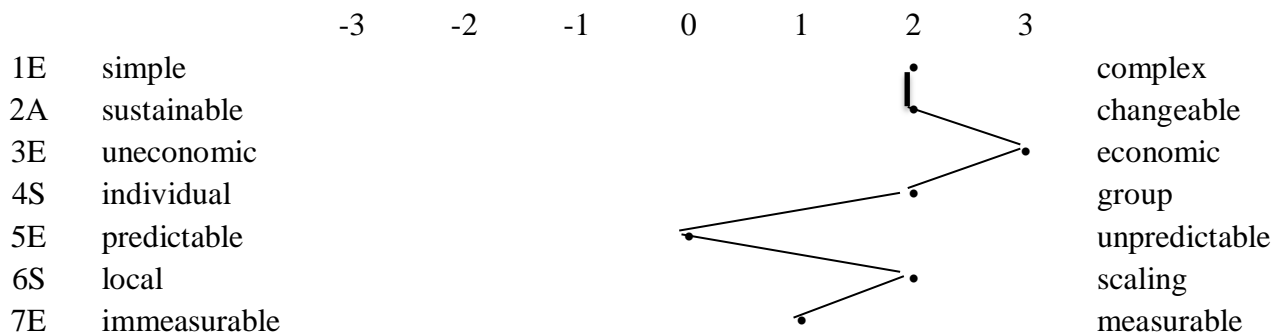


Fig. 2. Evaluation of the concept of "regional health" using a semantic differential

The obtained curves make it possible to construct a quantifiable profile of each concept. It is advisable to analyse the subjective similarity between the studied concepts. To do this, calculate the semantic distances by the formula:

$$SD(a; b) = \sqrt{\sum d(a_i b_i)^2}, \quad (1)$$

where $SD(a; b)$ – semantic distance between objects a and b ; a_i, b_i – the difference between the coordinates of two points that convey the values of objects A and B by factors.

To find the semantic distance between the concepts of "population health" and "regional health" one uses the formula:

$$SD_{AB} = \sqrt{(E_A - E_B)^2 + (S_A - S_B)^2 + (A_A - A_B)^2}, \quad (2)$$

Substitute numerical values:

$$SD_{AB} = \sqrt{(1 - 6)^2 + (-3 - 4)^2 + (0 - 2)^2} = 8.83, \quad (3)$$

The distance between the concepts is relatively high, which indicates their significant differences. They are remote in the semantic space. The concept of "population health" is individualized. The concept of "regional health" is more complex, economically oriented, and scalable. The authors formulated the definition of "regional health".

Regional health is a socio-economic indicator of the state of physiological and psycho-emotional development of a particular territorial unit's human potential, which is formed under the influence of a set of different factors. These initial parameters characterize the quality and safety of life in the analysed location.

Knowing the above concept and what forms it, it is possible to outline the essence of the concept of healthy regional development as one that aims to achieve at least sufficient. Maximum high levels of regional health through integrated development and support of vital areas of a particular territorial centre (economic, social, environmental, cultural) [21], without which progress as such is impossible. According to the authors, the well-known rainbow model from scientists Dahlgren and Whitehead is entirely accurate, which an attempt was made to supplement following the realities of the modern world. The addition and modernization of the health rainbow was carried out in combination with an authoritative source [23]. According to this source, the aggregate health indicator within a given area can be calculated by considering unitary health indicators (health consequences, human behaviour concerning health, individual characteristics of each person) and broader aspects of health formed under the area's influence a person lives. The generalization of approaches to the assessment of regional health gave grounds to form groups of indicators, which, in the opinion of the author's team, comprehensively and

comprehensively able to give a sound idea of the current state, changes, and trends in the healthy development of a particular territorial unit (Fig. 3).

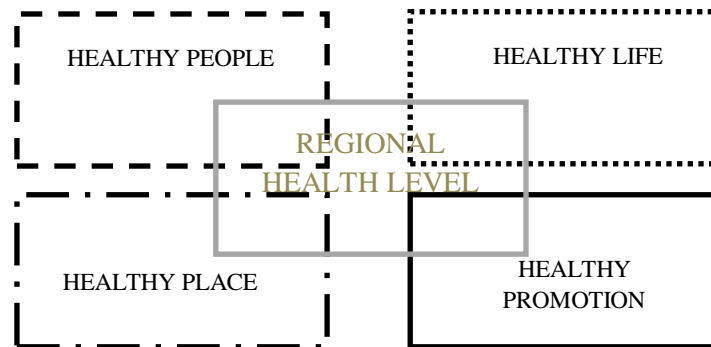


Fig. 3. Components for quantifying regional health

Based on the model of archetypes of F. Kotler [24], in the field of regional development, it is also possible to distinguish models of improving the development of the territory following the selected four components in Fig. 3. The authors model the differences between these four models. The ideal model is a rectangle model when all components are equally high in value (therefore, in the region, all the calculated groups of indicators at a particular time stage are sufficient by the parameters of the optimization adopted by the researcher). The other four models reflect the mistakes and options for the development of the region to recover and visually show the directions of equalization of the values of the complex indicator of the territorial level of health (Fig. 4).

The existence of various erroneous archetypes of regional development path indicates that it is necessary to achieve the effectiveness of all regional health index components to manage health-improving changes in a particular area effectively. The modern development of countries focusing on a market economy in a continually changing environment requires forming an innovative system of flexible regional governance with adaptation to the requirements of the environment and socio-economic environment of a particular area. One of the strategic management tools to ensure a healthy vector of development of the region is territorial marketing (region marketing, place marketing). In regional rehabilitation, the marketing promotion of a healthy lifestyle through various project technologies, individual promotions, one-time promotion companies, marketing strategies, etc. becomes essential. The primary task of regional health promotion is to convince the local population to increase physical activity, healthy lifestyle, proper nutrition, abandonment of bad habits,

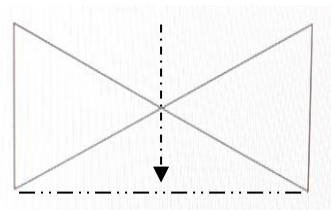
children's proper upbringing, environmentally friendly behaviour, and more. Behavioural marketing is a rather complicated section in marketing science because often, even if an individual is motivated to behave appropriately according to the purpose of influence, there may be barriers that are difficult to overcome, such as the influence of the family environment, disinformation in social networks, economic factors etc.

THE CORRECT ARCHETYPE OF THE WAY OF REGIONAL DEVELOPMENT AS A CENTER OF HEALTHY LIVING OF ITS POPULATION

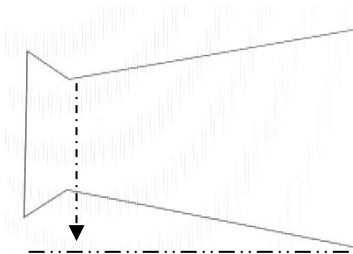


The development of the region is complex, gradual taking into account the uniformity of achieving the criterion of the sufficiency of all components of the health of the designated area

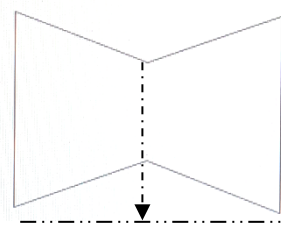
ERROR ARCHETYPES OF REGIONAL DEVELOPMENT TAKING INTO ACCOUNT THE HEALTH CRITERIA



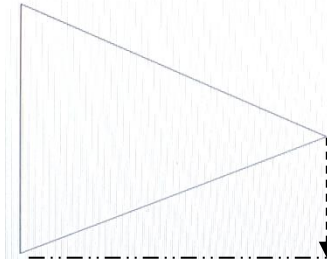
The management of the region does not pay attention to the development of local infrastructure, service



With various policies to promote healthy development, public health indicators remain low (an unfavorable epidemic situation, unstable demographic situation, geographical features, etc.)



One of the components (healthy life or healthy place) is ignored, resulting in a lag in values



The marketing component remains a weak point in the region – insufficient promotion of the territorial product, weak branding, lack of a clear marketing strategy for promotion

Fig. 4. Archetypes of healthy orientation of the region's development: right and wrong ways of change

Nevertheless, there is no doubt that the impact of marketing and promotion in realizing the potential of health and overcoming inequalities in this regard is significant. Furthermore, this influence is manifested through targeted motivation. It is essential to separate the active actors initiating changes in promoting a healthy lifestyle in the region (population, local governments, NGOs, businesses operating in the area). The most interested in promoting health marketing is the population, for whom a healthy environment in the region of their residence and the way of life of their relatives and friends is essential. Improving health expenditures in the region is also clearly a desirable goal for the authorities, reducing health care costs and social benefits. The role and interest in the rehabilitation of the region of local entrepreneurs are quite different, divided into different groups according to their types of activity (Fig. 5). It is possible to build an effective system of integrated marketing communications to level the situation in the region in health care, production and marketing of products, ensuring an acceptable ecological territorial situation, maintaining a high quality of life, etc.

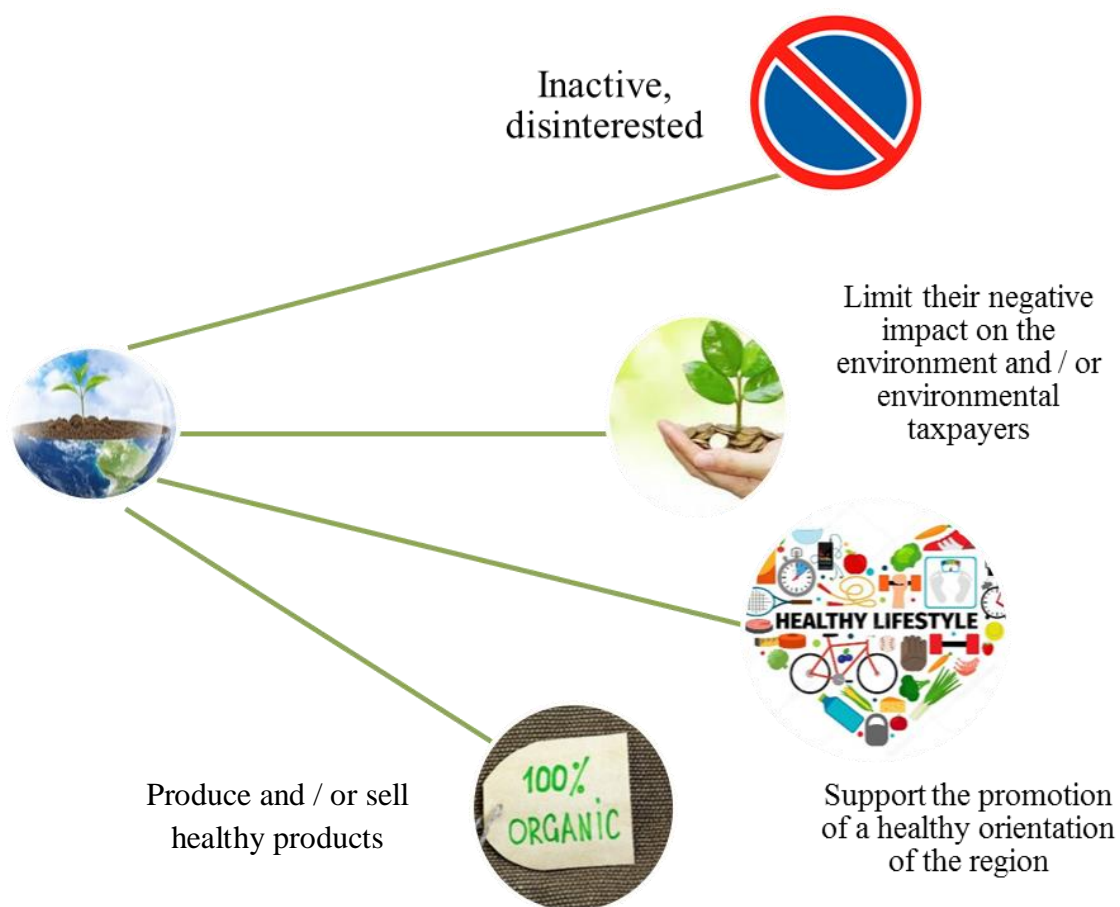


Fig. 5. Classification of enterprises according to the impact on the health of the region of their activity

Enterprises belonging to the inactive or disinterested groups can be producers of ordinary products, which for one reason or another have no motivation for healthy behaviour, the promotion of quality new products. Concerning the environmental impact of local producers on the territory of their operation, the gradual introduction of international standards for environmental management in enterprises significantly contributes to implementing healthy regional initiatives in Ukraine. Ecological modernization of production entities is a way to reduce environmental tax rates and improve domestic products' environmental performance. After all, at present, two-thirds of the Ukraine population live in areas where, for example, the air does not meet hygienic standards (the main pollutants along with vehicles are mining and processing industries, as well as heat). The movement towards regional recovery regarding healthy products and services requires high financial costs from entrepreneurs, which do not always pay off. Only with a change in the local population's lifestyle to a healthy one, when healthy services and goods will be in demand, then businesses will be motivated to enter the market with new product offers of a qualitatively new level. It is necessary to introduce a mechanism for public authorities' sufficient work to explain, motivate and encourage the population to healthy consumption, which should become the norm.

A group of enterprises engaged in the promotion of healthy development in the region should be singled out. It is their already implemented marketing initiatives that are of interest to the authors of the study. Besides, there are several municipal-level programs, which are also included in the analysis. Examples of some such projects are given in Table 2.

From the analysis of Table 2, it is evident that public organizations play a key role in launching social projects on health in Ukraine. Their initiative is taken up by business entities directly or indirectly related to health care (medical centres, food producers, representatives of the medical tourism industry, sports facilities, etc.). The global COVID-19 pandemic shows what causes the activity or inaction of each individual, business entity, and regional government. Many global companies are launching charities during the crisis. Many examples of companies have restructured their production facilities to produce paramedics, masks, and protective suits for medical workers. Well-known brand manufacturers such as Burberry and Bulgari have donated millions of euros to develop a vaccine against the new virus. The automobile company Tesla has established the production of artificial respirators.

Table 2. Examples of implemented or at the stage of implementation of marketing programs in the field of promoting healthy regional development

Program name	Level of implementation (region)	Description of the program, its results
The project "Healthy" [25]	Participants: international organizations, government agencies, doctors, medical institutions, pharmaceutical companies, and other companies whose activities are related to sports or healthy eating. Coverage: the eight most large cities of Ukraine.	Conducting large-scale surveys, days of medical checks, health gifts, creating a platform (site and pages on social networks) (incentive wheel, educational programs, etc.).
School of healthy snacking [26]	The initiator is MKhP Holding. National level.	Official site "Nasha Ryaba", social networks. Television program for cooking healthy food for schoolchildren.
Health Workshop	In seven major cities of Ukraine. Initiator – All-Ukrainian Medical Society.	Preventive and educational project. Providing the opportunity to undergo free preventive examinations and consult doctors.
Active parks are locations of healthy Ukraine	Initiator – public administration bodies of Ukraine. National social project.	Organization of health-improving activity of Ukraine citizens, creation of conditions for reduction of morbidity indicators, improvement of quality and duration of active life of the population.
Healthy vision [27]	The initiator is the national network of opticians "Liuksoptyka".	The project aims to identify vision impairment and create a culture of responsible eye health in the population of Ukraine.
Health. Everyone's choice [28]	The target audience is schoolchildren of the Poltava region. The initiator is the public organization "Healthy Humanity" and local business.	Competition of thematic essays with the opportunity to receive gifts and awards for the school. Educational project.
A healthy nation is a prosperous state [29]	Older people from all Ukraine regions, children with special educational needs, and children of socially vulnerable groups. Initiator – International Charitable Foundation "Volunteer Association" Wings", other charitable foundations and sponsors	Carrying out activities in the social sphere aimed at supporting the prevention of morbidity and reduction of disability of the population

There are examples of charity among representatives of the service sector. The well-known Australian retailer Woolworths allowed every healthcare worker to drink tea or coffee for free in any chain supermarket [30].

Marketing in promoting a healthy lifestyle and regional development acquires other features, is digitalized, modernized to meet the demands and new market circumstances. There is no doubt that the trend towards improving people's daily lives in the regions of their residence will continue soon. The successful development of social projects that will promote healthy behaviour, creating and maintaining a loyal relationship between the consumer and the brand of healthy products, effective interaction between all participants in the health of the territory will become relevant.

References

1. Shushpanov, D. G. (2014). Socio-economic determinants of public health through the prism of social marketing. *Socio-economic relations: theory and practice*, 2, 325-331.
2. Kindig, D., and Stoddart G. (2003). What is population health? *Am J Public Health*, 93 (3), 380-383.
3. Stoto, M. A. (2013). *Population health in the Affordable Care Act era*. Washington, DC: AcademyHealth.
4. Diez Roux, A. V. (2016). On the distinction – or lack of distinction – between population health and public health. *Am J Public Health*, 106, 619-620.
5. Sharfstein, J. M. (2014). The strange journey of population health. *Milbank Q*, 92, 640-643.
6. Last, J. M. (2007). *A dictionary of public health*. New York.
7. Ignatyevs, S. et al. (2018). Engagement of Regional Stakeholders in Territory Marketing of Latvian Regions. *Journal of Advanced Research in Law and Economics*, Volume IX, Fall, 6 (36), 1972-1985. DOI: 10.14505/jarle.v9.6(36).11.
8. Kumari, R., & Sharma A. K. (2018). Long-term relationship between population health, FDI and economic growth: new empirical evidence, 20 (3), 371-393.
9. Herzer, D. (2016). The long-run relationship between trade and population health: evidence from five decades. *The World Economy*. doi: 10.1111/twec.12419.
10. Pascual-Saez, M., Cantarero-Prieto, D. and Castañeda, D. (2017). Public health expenditure, GDP and the elderly population: a comparative study. *International*

- Journal of Social Economics, Vol. 44 No. 10, 1390-1400.
<https://doi.org/10.1108/IJSE-03-2016-0106>.
11. Temirkanova, A. V. et al. (2017). Assessment of ecologo-economic health population risk. *International Journal of Applied Business and Economic Research*, 15 (23), 55-70.
 12. Bilan, Y., Vasilyeva, T., Lyulyov, O., & Pimonenko, T. (2019). EU vector of Ukraine development: linking between macroeconomic stability and social progress. *International Journal of Business & Society*, 20 (2), 433-450.
 13. Pimonenko, T., Lyulyov, O., Chygryn, O., & Palienko, M. (2018). Environmental Performance Index: relation between social and economic welfare of the countries. *Environmental Economics*, 9 (3), 1.
 14. Kostyuk, A., Oleschuk M., Ruban O. (2010) Key issues of British reforms of corporate governance in financial crisis: the board issue. *Corporate Ownership and Control*. Special Conference issue The First Annual Online International Conference on Corporate Governance and Regulation in Banks, Sumy, Ukraine, May 27-June 2, 6-16.
 15. Teletov, A., Letunovska, N., Melnyk, Yu. (2019). Four-vector efficiency of infrastructure in the system of providing regional socially significant needs taking into account the concept of marketing of changes. *Bioscience Biotechnology Research Communications*, 12 (3), 637-645. doi: 10.21786/bbrc/12.3/13.
 16. Rahmanov, F., Aliyeva, R., Rosokhata, A., & Letunovska, N. (2020). Tourism management in Azerbaijan under sustainable development: impact of COVID-19. *Marketing and Management of Innovations*, 3, 195-207.
<http://doi.org/10.21272/mmi.2020.3-14>.
 17. Kadar, B., & Reicher, R.Zs. (2020). Innovations in health care management: the effect of the pandemic on the labour market change. *Marketing and Management of Innovations*, 4, 120-130. <http://doi.org/10.21272/mmi.2020.4-09>.
 18. Salinsky, E. (2017). What does "population health" mean to you? Retrieved from: <https://www.gih.org/publication/what-does-population-health-mean-to-you/>.
 19. Silberberg, M., Martinez-Bianchi, V., & Lyn, M. J. What is population health? *Primary care: clinics in office practice*, 46 (4), 475-484.
 20. Ziabina, Ye. (2016) Theoretical aspects of the formation of green economy in the context of sustainable development. *Mechanism of Economic Regulation*. 3, 116-121.

21. Rosokhata, A. (2013). Selection criteria analysis for innovative projects as a component of their forecasting process. Abstracts of the III International Scientific and Practical Conference "Innovative Directions of Marketing Development: Theory and Practice", March 28-29, Lugansk, 87-90.
22. The Dahlgren-Whitehead rainbow (2021). Retrieved from: <https://esrc.ukri.org/about-us/50-years-of-esrc/50-achievements/the-dahlgren-whitehead-rainbow/>.
23. Developing the Health Index for England: 2015 to 2018. Retrieved from: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/articles/developingthehealthindexforengland/2015to2018>.
24. Kotler, Ph., Kartajaya, H., & Setiawan, I. (2016). Marketing 4.0: Moving from Traditional to Digital. John Wiley & Sons.
25. Healthier Culture Development Project in Ukraine "Healthier". (2021). Retrieved from: <http://zdorovi.agency/zdorovishi>.
26. School of healthy snack "Nasha Ryaba". (2021). Retrieved from: <https://ryaba.ua/back-to-school/>.
27. Social project "Healthy Vision". (2021). Retrieved from: <https://zdoroviy-zir.ua/>.
28. Poltava schoolchildren are invited to take part in the essay contest "Health. Everyone's choice". (2021). Retrieved from: <https://poltava.to/project/4874/>.
29. Social project "Healthy Nation – Rich State". (2021). Retrieved from: <http://kryla.org.ua/sotsialnyj-proekt-zdorova-natsiya-bagata-derzhava/>.
30. What are the marketing strategies launched by the coronavirus pandemic. (2021). Retrieved from: <https://lvbs.com.ua/news/yaki-marketyngovi-strategiyi-zapustyla-pandemiya-koronavirusu/>.