Healthcare and the Fight Against the Viral Threat as a New Direction of Economic Security and Sustainable Development: Experience 2020

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Abstract. Purpose: The purpose of the study is to identify the impact of the fight against the viral threat as a new direction of economic security on the sustainability of economic systems, as well as to determine the prospects for the sustainable development of the economy depending on the level of health care as a key factor in the completion of the pandemic.

Design/Methodology/Approach: The correlation analysis method determines the differences in morbidity and mortality from COVID-19 in the countries of the designated categories. The regression method determines the dependence of indicators of sustainable development on the level of development of health care. A forecast of health level change is made based on arithmetic mean and standard deviation. According to the forecast, possible health level values under different scenarios and consequences for sustainable development are determined.

Findings: It has been proven that in the context of the 2020 pandemic, health care has received a new role related to the fight against the viral threat. Countries that have mobilized their health systems and stepped up the fight against the viral threat through the development of a vaccine show lower morbidity and mortality from COVID-19 compared to countries with developed health systems, but focused on a stable epidemiological situation.

Originality/Value: It is justified that the best (optimistic) scenario for combating the viral threat in 2020 allows not only to maximize the development of health care (by 14.67%), but also provides benefits for sustainable development (an average increase in all indicators by 4.80%); an increase in competitiveness by 5.74%, GDP per capita by 30.55% and a sustainable development index by 5.53%. This opens up expanded opportunities for economic security in a new aspect related to health care as a fight against the viral threat.
1 Introduction

Economic security is the ability of the economic system to withstand internal and external threats and to continue stable functioning and development, that is, to maintain sustainability. Therefore, sustainable development is the embodiment of economic security. Economic security has many directions, each of which reflects some kind of “narrow” aspect of it, for example, political security, military security, food security.

In recent years, in connection with the emergence of the “knowledge economy,” the security of innovation from the point of view of protection of intellectual property has acquired an important role. As the information society develops, the importance of protecting personal data and information increases. The transition to a digital economy has contributed to the emergence of cyber security from the perspective of the safe use of digital technologies.

Health care has traditionally been about quality of life, but not about economic security, since it did not determine opportunities for environmental protection, business activity, economic growth rate, or other key indicators. United Nations (2020) identified Goal 3, good health and well-being, as a sustainable development goal. This goal provides for the availability of health services and medicines to the general population.

The experience of 2020 has radically changed the situation, putting health care in the first place among threats to economic security. For the first time in decades, a highly developed human society with progressive medicine has proved virtually defenseless against a new infection - a COVID-19 that does not help existing drugs and the most effective available measure is to limit social contacts.

In 2020, the pandemic created a new sense of health care as a fight against the viral threat that determines economic security, since in the pandemic there was a decline in business activity and the manifestations of the economic crisis worsened. The aim of this study is to identify the impact of the fight against the viral threat as a new direction of economic security on the sustainability of economic systems, as well as to determine the prospects for the sustainable development of the economy depending on the level of health care as a key factor in the completion of the pandemic.

2 Materials and Method

The issues of economic security and sustainable development have been sufficiently studied and disclosed in the publications of scientists such as Andronova et al. (2019), Frolov et al. (2017), Goyal and Sergi (2015), Haabazoka (2019), Inshakov et al. (2019), Morozova et al. (2019), Petrenko et al. (2018), Popkova et al. (2014), Popkova et al. (2017), Popkova et al. (2016), Pozdnyakova et al. (2017), Ragulina (2019), Ragulina et al. (2019), Sergi et al. (2019), Sergi (2018), Zavyalova et al. (2018), Lukyanenko (2017), Borodin and Morozova (2017), Popkova (2017). Nevertheless, health care in
the fight against the viral threat is not sufficiently explored from the standpoint of economic security and sustainable development and therefore needs to be studied in depth taking into account the experience of 2020.

To identify differences between the traditional treatment of health care as availability of medical services and medicines and the new treatment of health care in pandemic conditions as the fight against viral threat, the top 5 countries by health level and the top 5 countries for the development of COVID-19 vaccine were selected as the objects of this study, the statistics on which are systematized in Table 1.

Table 1. Statistics on health, morbidity and mortality from COVID-19 and sustainable development

| Category of countries in pandemic situations 2020 | Country | Health care index, points 1–100 | Incidence rate COVID-19, cases | Number of fatalities from COVID-19, cases | COVID-19 mortality rate, % | Global competitive Index news 4.0, points 1–100 | Economic growth rate, % | GDP per capita, US $ | Sustainable Development Index, points 1–100 |
|---|---|---|---|---|---|---|---|---|---|
| Top 5 countries by health level protection | South Korea | 81.97 | 11503 | 271 | 2.36 | 79.60 | 3.03 | 31180.31 | 78.30 |
| | Japan | 81.14 | 16884 | 892 | 5.28 | 82.30 | 0.85 | 40542.06 | 78.90 |
| | Denmark | 80.00 | 11669 | 574 | 4.92 | 81.20 | 1.80 | 55547.88 | 85.20 |
| | France | 79.99 | 148524 | 28746 | 19.35 | 78.80 | 1.75 | 39121.16 | 81.50 |
| | Spain | 78.88 | 239801 | 29045 | 12.11 | 75.30 | 2.05 | 28619.09 | 77.80 |
| | Average by category | 80.40 | 85676 | 11906 | 8.80 | 79.44 | 1.89 | 39002.10 | 80.34 |
| Top 5 Countries for COVID-19 Vaccine Development | Russia | 57.59 | 414878 | 4855 | 1.17 | 66.70 | 1.50 | 11558.84 | 70.90 |
| | USA | 69.27 | 1734040 | 102640 | 5.92 | 83.70 | 2.12 | 64212.54 | 74.50 |
| | Canada | 71.58 | 90516 | 7092 | 7.84 | 79.60 | 1.84 | 45845.25 | 77.90 |
| | China | 64.48 | 84588 | 4645 | 5.49 | 73.90 | 6.00 | 9850.99 | 73.20 |
| | Australia | 77.38 | 7195 | 103 | 1.43 | 78.70 | 2.95 | 59120.04 | 73.90 |
| | Average by category | 68.06 | 466243 | 23867 | 4.37 | 76.52 | 2.88 | 38117.53 | 74.08 |
| For the entire selection of countries | Arithmetic mean | 74.23 | 275960 | 17886 | 6.59 | 77.98 | 2.39 | 38559.81 | 77.21 |
| | Standard deviation | 8.23 | 528415 | 31802 | 5.53 | 4.94 | 1.42 | 18658.41 | 4.23 |

Source: compiled and calculated by the authors based on the materials of the Institute of Scientific Communications (2020), Numbeo (2020), World Health Organization (2020)

The correlation analysis method determines the differences in morbidity and mortality from COVID-19 in the countries of the designated categories. The regression method determines the dependence of indicators of sustainable development on the level of development of health care. A forecast of health level change is made based on arithmetic mean and standard deviation. According to the forecast, possible health level values under different scenarios and consequences for sustainable development are determined.
3 Results

To identify differences in the role and significance of health care in a stable epidemiological situation and in a pandemic period, reference is made to the results of a correlation analysis of the association between health level, morbidity and mortality from COVID-19 in the identified categories of countries (Fig. 1).

![Fig. 1. Correlation of health level with morbidity and mortality from COVID-19 in selected categories of countries, %. Source: calculated and built by the authors.](image)

As it is shown in Fig. 1, morbidity (correlation -9.97%) and mortality (correlation 18.42%) from COVID-19 are lower in countries active in vaccine development and have most restructured their health systems to combat the viral threat. So, the average mortality from COVID-19 in the top 5 countries in terms of health care is 8.80%, and in the top 5 countries in the development of a vaccine against COVID-19 it is almost 2 times lower and is 4.37%. The effects of healthcare on the sustainability of the economy reflect the following regression curves (Fig. 2).

According to Fig. 2, with an increase in the level of health care (in a full sample of countries) by 1 points, global competitiveness increases by 0.4109 points, economic growth decreases by 0.0497%, GDP per capita rises by $ 1081.7 and the sustainable development index rises by 0.3922 points. To determine the prospects for the development of health care, refer to the forecast obtained (Fig. 3).

Figure 3 shows the forecast when «under otherwise equal conditions». In a pandemic, resources are diverted to health. Therefore, the level of health care development compared to 2019 (74.23 points) will increase with a pessimistic scenario to a minimum of 75.67 points, with a realistic scenario to an average of 80.39 points, and with an optimistic scenario to a maximum of 85.12 points. The impact of health improvements in the identified scenarios on sustainable development is shown in Table 2.

For clarity, the key results of the script analysis are shown graphically in Fig. 4. Figure 4 shows that despite limiting economic growth, the greater the increase in health levels in the context of the 2020 pandemic, the more pronounced the increase in indicators of sustainable development, which in the pessimistic scenario averages 0.65%, in the realistic scenario - 2.72% and in the optimistic scenario - 4.80%.
Fig. 2. Regression curves reflecting the impact of health levels on the manifestations of sustainable economic development. Source: calculated and built by the authors.

Fig. 3. Health care development forecast 2020. Source: calculated and built by the authors.
The results of the research showed that in the context of the 2020 pandemic, health care received a new role related to the fight against the viral threat. Countries that have mobilized their health systems and stepped up the fight against the viral threat through the development of a vaccine show lower morbidity and mortality from COVID-19 compared to countries with developed health systems, but focused on a stable epidemiological situation.

The best (optimistic) scenario for combating the viral threat in 2020 allows not only to maximize the development of healthcare (by 14.67%), but also provides benefits for sustainable development (an average increase of 4.80%): an increase in competitiveness by 5.74%, GDP per capita by 30.55% and a sustainable development index by 5.53%. This opens up expanded opportunities for economic security in a new aspect related to health care as a fight against the viral threat.
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