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MODELING OF THE AVERAGE LIFETIME EXPECTANCY IN UKRAINE

The modern world seeks to improve living standards. The desire and pursuit of luxury and comfort, care for the environment and technological breakthroughs – all of this is the part of paradigm of peace in the 21st century.

Not surprisingly, many people from poor countries dream of living and developing in European countries where living standards are much higher. Social trends in our time tell us that human needs as many tangible and intangible goods as possible for greater productivity.

Governments of developing countries are trying to achieve the same economic and social level. Mostly it is because of constant migration, in particular the "brain drain" of the younger generation. As they understand that their capabilities and intelligence will allow them to stay in another, more developed country. Those people are able to develop the country's economy by creating a competitive product or new technology.

The second reason, is the economic component. The more a person spends in a country, the more money he will spend on that country's economy. The turnover of money on the market and its speed are important for any economic growth. European countries have a high level of taxation, but in return a person receives free, or almost free, intangible benefits, such as advanced logistics, medicine. In this system, the poor population will remain in a more developed country, which will allow large manufacturing companies to have the resources for labor and to develop their manufactory.

Based on this, in tangible and intangible benefits of citizens are interested not only them, but also the state and companies. And it's not just about economic gain - it's the norms of modernity that people strive for. The Happy Planet Index, an index that shows the level of well-being of the population and the environment, was proposed by the New Economics Foundation in 2006 and is a key indicator so far.

No less important is the average life expectancy. Life expectancy is a demographic prognostic indicator that shows the average expected interval between birth and death for a particular generation [1]. The problem of low life expectancy is a common issue in underdeveloped countries. With the development of technology

and economics, it became clear that this is not a genetic superiority of some countries over others, but a combination of many factors.

Naturally, many developing countries are trying to achieve the same standard of living as economically developed ones. Nevertheless, all of their successful and not very implemented policies lead to the fact that their result is reflected both in the economic, environmental and social spheres, and, subsequently, on the number of years citizens have lived in their country. In turn, this affects the economy, and subsequently, the rest of the sectors. Also, life expectancy reflects local conditions: in less developed countries, life expectancy at birth is lower than in more developed countries.

To sum up, our main aim of modelling is to understand which indicators will be most important in the average life expectancy, which areas are most influential and what needs to be done and in what time frame to raise ukrainian indicator (Figure 1) to European standards.
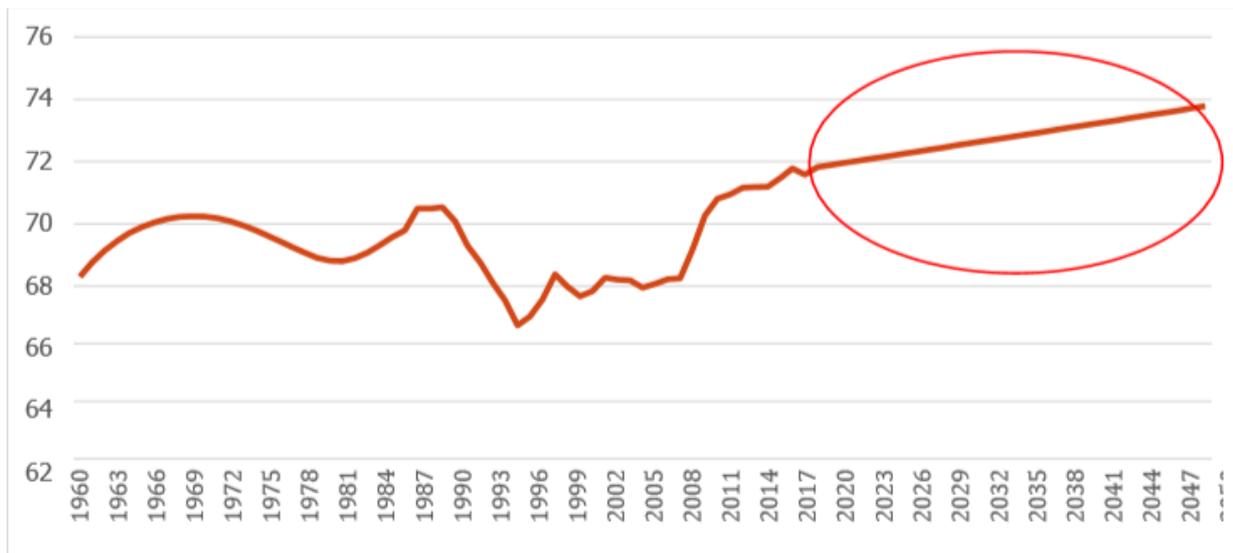
Figure 1. Reference mode

The CLD (figure 2), represents the dynamic hypothesis for how average lifetime expectancy can be affected by different sectors. This CLD does not correspond perfectly to the actual model, but it is a visualization of what the model attempts to capture. We assume that there are a number of values that affect life expectancy:

1. Stress level
2. Self-Healthcare

3. Social advantages

4. Nature

5. Sustainability

We also assume that there are about five systems that affect our life:

1. Government policy

2. Geography and environment

3. Economy

4. Health

5. Social and cultural aspects

Government pursues two policies - internal and external. Domestic policy is related to how the state distributes its revenues, in which areas. If the state allocates more money for medicine, education, transport, environment, then the citizens of this country will have more social advantages. The more there are, the easier, more convenient, safer and healthier for people to live. If the state allocates a lot of money for other areas, for example, the army, which does not directly improve people's lives, then this will not in any way affect the social advantages.
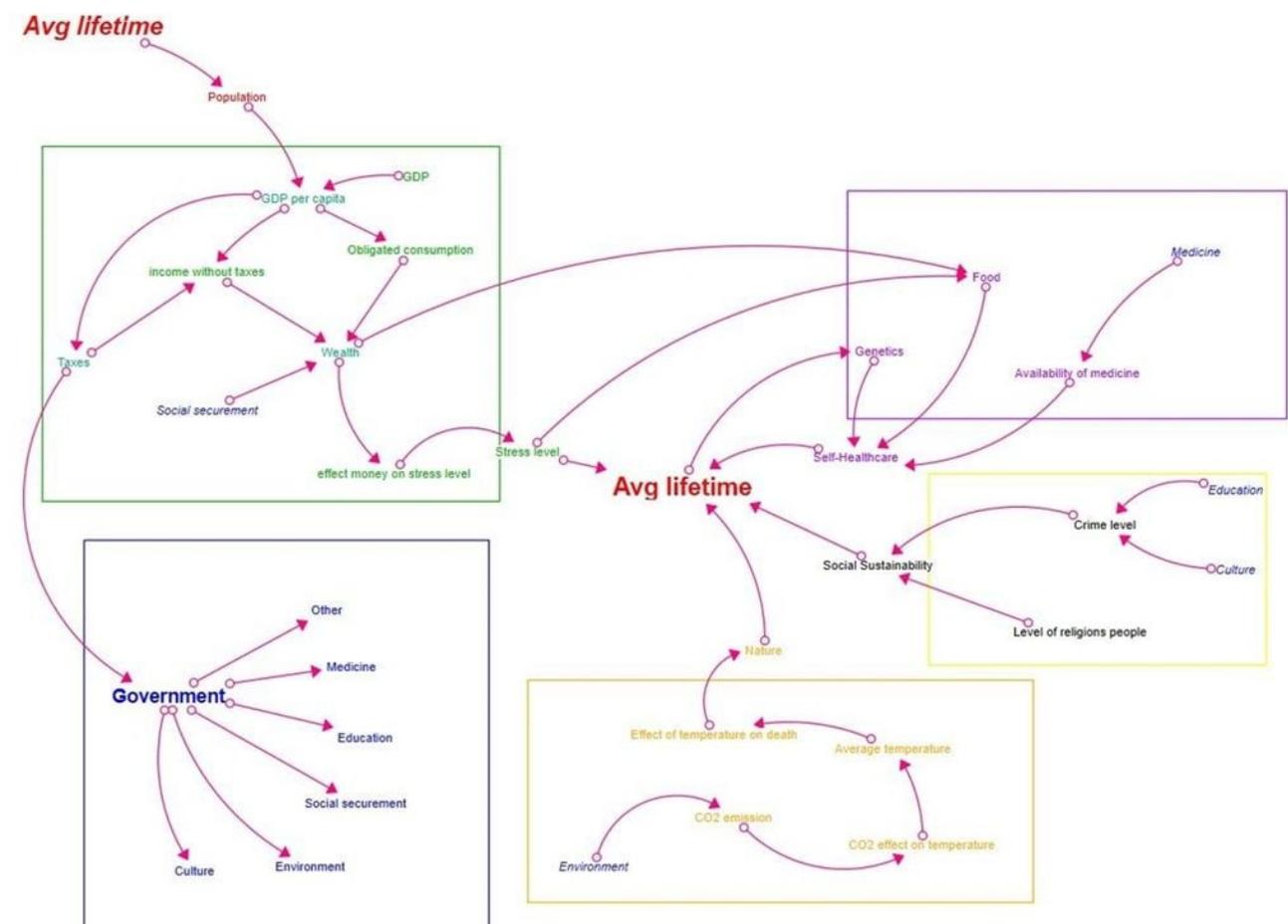
Figure 2. CDL model

Economy The main factor in economics is the wealth of the citizens themselves. It is a conditional indicator that affects the number of taxes, confidence in the future and food demand. We do not follow the Maslou pyramid here and do not run into other possibilities of spending money in order not to complicate the model with insignificant indicators. We assume that the level of prosperity itself is influenced by the unemployment rate, the propensity to crisis, and GDP per capita.

Health The next block is a personal health of every citizen. To simplify the model, we decided that one of the factors that influences is food, which is dependent on income, stress and constraints. The more income, the less stress. We also believe that key factors in health are genetics, as a constant for each country, and the availability of medicine itself. On top of that, genetics factor, in our opinion, will be weak, but changes of the average life expectancy growth will still affect this.

Social and cultural aspects This part shows how crime level, education level and level of investments can effect a Social Sustainability level, which has an impact on the Average Lifetime expectancy.

Geography and environment These factors are both natural and man-made features. We found out that high temperature has a negative impact on the human health [7]. Therefore, in colder countries, people live longer than those who live closer to the equator. Additionally, CO_2 emissions have an effect on the average temperature [10], that is why we decided to explore impact of this factor as well.

In conclusion, our model shows the most important levers of influence and why they are interconnected. As the result we got approximate weights on the average life-time expectancy of different sectors: Economic sector- 50%; Health sector- 25%; Social Sustainability- 15%; Environment sector- 10%. Based on it we can make a conclusion that government should focus, first of all, on the economy and on the material well-being of its citizens. Our model also indicates that it does not matter what kind of implementation will be: economic or political policies. After all, life expectancy hides not just age, but the standard of living in the country. This is a much more important indicator than it might seem.

References

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