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RESEARCH ARTICLE

Health Capital and Economic Growth: Evidence from Georgia

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Abstract:

Introduction:

Investments in healthcare are important in terms of formation of the health capital. The research aims to find out the role of the health capital in economic growth of a country.

Methods:

This study is based on the secondary sources of data. The study data were obtained from Human Development Report, Ministry of Labor, Health and Social Protection of Georgia. As a proxy indicator for measuring the health capital we used the life expectancy at birth, the general and initial illness rate, the general, maternal and children's mortality rate, outpatient referral rate, the state expenses on healthcare, the share of state expenditure in total expenditure on health and state expenditure on health as a percentage of the Gross Domestic Product.

Results:

The average life expectancy has increased in recent 25 years. The maternal and children's mortality rate have decreased, healthcare expenses have become higher and outpatient referral rate has also become more constant character. All these have a positive influence on the people's health and country's economic growth. However, the state expenses on healthcare and outpatient referral rate are far below the European level.

Conclusion:

As the health capital fulfills significant role in terms of the country's economic growth in a long-run perspective, it is advisable to promote the development of the primary healthcare system and taking WHO recommendations concerning state healthcare expenses into account.

Keywords: Health capital, Human capital, Economic growth, Investments, Life expectancy, Children's mortality.

1. INTRODUCTION

According to the OECD, human capital is defined as: "the knowledge, skills, competencies and other attributes embodied in individuals or groups of individuals acquired during their life and used to produce goods, services or ideas in market circumstances" [1].

The human capital concept was elaborated in the 1960s. T. Schulz was the first to use the term 'human capital' in which he implied a combination of investments in a human being that improves his/her working capacity [2]. Schulz's ideas were further developed by the so-called 'Chicago School' representatives (G. Baker, P. Bowen, E. Hansen) who have established the main assumptions of the human capital concept. According to the Nobel Prize Laureate G. Baker 'the human capital represents a combination of innate capabilities as well as acquired skills, knowledge and motivation

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that are used for producing goods and services and represent a source of human and social income' [3]. Becker observes that investments in human capital should fall with age as the period over which returns can be accrued decreases; Yet, investments in health clearly increase with age, even after retirement when health has lost its importance in generating earnings [4].

Initially, education was considered to be the main factor in the human capital formation. In 1970s, M. Grossman presented the health capital role according to which a person is interested in increasing his future incomes due to investments in education and health [3]. Consequently, human productivity increases and causes economic growth in turn [4].

The health capital implies investments in a human being that are necessary for maintaining his health and capacity. Health influences a person's wellbeing. It represents the goods that can be consumed as well as invested. Health, as the consumable good, implies that it gives pleasure to a person. Thus, health, as the consumable goods is required. Health, as an investment advantage means that a person is able to work and make incomes. The health investment advantage is determined by the value of the benefit received as a result of the advantage. For example, the life expectancy growth means additional years of work through which a human being receives incomes and invests in his own capital. Disabilities, illness and mortality are perceived as the loss in terms of the social health, causing significant economic losses. Naturally, investments in the health capital promote increasing the number of population capable of working, as well as reducing illness and death rate which in turn have a positive impact on a human capital.

Health determines the length of time a person is able to spend on working. A healthy person almost never misses any of the working days, therefore, he/she is more productive. Health reduces the number of the days of illness and the number of working days increases. It means that health production influences profitability of a person. A healthy person's satisfaction level as well as number of healthy days for work increase. It means the possibility of receiving incomes that are reflected in the growth of incomes.

In this respect, health status represents an important part of the human capital. A human being receives the familial initial health supply. But when the physical capital is damaged, the health capital may lose value day by day. Therefore, people invest in health aiming to make it better. It can be said that the health capital has an individual as well as social importance for a human being and society. According to Grossman, the health capital is given more significance as other goods and services are consumed in the modern era [5]. Samuel Preston was the first who studied the relation of health condition with incomes per an individual [6]. According to him, there is a positive relation between the national income level and life expectancy. Initially, the role of health in less developed countries was focused on. Health was considered as the way to escape poverty [7]. Afterwards, when analyzing the difference between poor and rich countries, the role of health in terms of the economic growth was emphasized. Studies showed that health condition was much more important in the economic growth than education level [8, 9].

Improved health condition of population has a positive effect on economic productivity. Five main mechanisms are distinguished [10].

Health and education together represent a factor that determines an individual's productivity and efficiency. Empirical evidence shows that healthy workers have a better physical and mental health and therefore are more productive [11, 12]. Health also influences the labor provision as health problems become the reason for not being present at work [13]. At the same time an individual with health problems may arrive at work but all his efforts may happen to be less productive.

1.2. Life Expectancy

Improved health promotes improvement of the life expectancy. In turn, as people expect a long life, investments in education become more attractive and motivation for making more savings at the pension age also emerges [14]. As a result, life expectancy growth encourages improvement of qualification of education and savings' level. Life expectancy growth also has an impact on the demographic structure of the population. Reduction of the infant mortality rate and improvement of the life expectancy causes proportional growth of the worker population; but in the long-run perspective, an opposite effect is expected against the background of the birth rate reduction. In highly-developed countries, the birth rate reduction causes decrease of the employable population.

1.3. Ability to Learn

Studies prove that improvement of the health condition promotes development of better cognitive abilities as well as skills and positive educational results [15, 16]. The better an individual's health condition, the higher the cognitive skills are. Also, the level of being absence at school or work is lower and individuals are more able to absorb and accumulate knowledge.

1.4. Creativity

Better educational results achieved due to good health have a positive effect on creative and innovative activities. Educated people are good innovators and more flexible in terms of technological changes. Therefore, improvement of education accelerates technologic development. It can be concluded that healthy and educated workers respond to technological changes as well as innovative processes more easily; that represents a factor which determines successful implementation of changes.

1.5. Inequality

The different nature of the investments made in human capital causes different incomes. In this context, improvement of health may be considered as a tool for reduction of inequality of incomes. The lower the inequality between people's incomes, the more people will be allowed to finance their education and health needs that will further improve their economic condition. Considering that health and incomes are closely related to each other, reduction of inequality between incomes will cause reduction of inequality of health. Therefore, investment in the health sector will reduce inequality between incomes, increase labor productivity and promote economic growth.

2. METHODOLOGY

This study is based on the secondary sources of data. The data were collected in a period of 1990 to 2015. The data for this study were obtained from Human Development Report, Ministry of Labor, Health and Social Protection of Georgia (of various years). Economic growth of a country is determined by increase in the size of the economy of a nation. Commonly, economists measure economic output of a country through its Gross Domestic Product (GDP). We have taken Gross Domestic Product as a dependent variable in our study. As a proxy indicator for measuring the health capital we used the life expectancy at birth, the general and initial illness rate, the general, maternal and children's mortality rate, outpatient referral rate, the state expenses on healthcare, the share of state expenditure in total expenditure on health, state expenditure on health as a percentage of the Gross Domestic Product.

3. RESULTS AND DISCUSSION

3.1. Health capital and Georgia

The following factors influence formation of the health capital of population: illness of people, disabilities, mortality rate, life expectancy, healthcare expenses and outpatient referral rate Table **1**.

According to the table, in the period of 1995-2015 GDP increased 6.7 times, that indicates the country's economic growth [17 - 21]. The human development index has increased by 12.2% in this period (0.83% annual growth) and hit 0.754 by the year of 2015; According to the rate, Georgia is ranked 76th among 188 countries [17].

The average life expectancy growth has had a positive impact on the country's economic growth. The same has been done by reduction of maternal and children's mortality rate and higher state expenses on healthcare.

According to some scholars, the rate of life expectancy is characterized by certain stagnation in the last decade [22].

Table 1. Factors influencing health capital, Georgia.

–	1990	1995	2000	2005	2010	2015
GDP per individual (current prices), USD	1614.6	569	692	1530.1	2964.5	3796
Human development index	-	-	0.672	0.711	0.735	0.754
Life expectancy	71	70	71.8	73.9	73.9	74.4
Morbidity Prevalence rate (per 100 000 population per year)	-	-	27006.5	35823.3	49553.9	101154.1
Morbidity Incidence rate (per 100 000 population per year)	22498.2	9077.5	10623.8	15902.6	26076.6	59677.3

(Table 1) contd.....

Mortality rate per 1000 people	9.6	7.8	10.7	9.3	10.6	13.2
Infant mortality rate (probability of dying by age 1 per 1000 live births)	22	29	21.2	18.1	12	8.2
Under-five mortality rate (probability of dying by age 5 per 1000 live births)	47	34	27.2	19.4	13.4	11.9
Maternal mortality ratio (per 100 000 live births)	40.9	55	60	23.4	19.4	27.1
Birth Rate – total number of live births per 1,000 in a population	14	11	10	10.7	10.7	15.9
Outpatient referral rate per individuals	-	1.1	1.5	2.1	2.1	3.6
General government expenditure on health (mln GEL)	-	31	61.7	194	414.8	656.2
General government expenditure on health as a percentage of total government expenditure	-	4.9	16.7	19.5	23.1	29.8
General government expenditure on health as a percentage of total expenditure on health (%)	-	0.9	1.2	1.7	2	2.24

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Infant mortality rate (probability of dying by age 1 per 1000 live births) decreased from 22 to 8.2 in 1990-2015 and under-five mortality rate (probability of dying by age 5 per 1000 live births) - from 47 to 11.9 [17]. For comparison, under-five mortality rate (probability of dying by age 5 per 1000 live births) is 11.3 in Europe [17].

Maternal mortality rate (per 100 000 live births) dropped from 41 to 27.1 in 1990-2015. For comparison, maternal mortality rate (per 100 000 live births) in Europe is 16 [17].

General government expenditure on health has increased in recent 25 years, and almost doubled in the latest 3 years; that has a positive impact on the population's health. But, despite these, Georgia is still significantly lagging behind the threshold set by the WHO recommendations as well as the rates of many poor countries with low incomes [23].

According to the World Health Organization, the government expenditure on health should constitute at least 15% of total state expenditure. Although government expenditure on health has significantly increased in Georgia, they are still very low in respect to the state budget reaching 6.9% only [23]. This rate is almost twice less than the recommendations by WHO, while it constitutes 15-20% in the developed countries [23].

According to WHO recommendations, state expenditures on health should represent more than 40% of total healthcare expenditures. State expenditures on health care in Georgia represents 29,8% of the total expenses on healthcare, thus Georgia is far below the recommendations of the WHO [23]. Unlike Georgia, the following countries have crossed the threshold: Armenia (41.7%), Kazakhstan (53.1%), Ukraine (54.5%), Kyrgyzstan (59%); As for China, Lithuania, Turkey, Germany, Japan, this rate is relatively 55.8%, 66.6%, 77.4%, 76.8%, 82.1% [17]. Due to all above mentioned, Georgian people have to pay by themselves for healthcare issues (up to 65%) [23, 24].

Outpatient referral rate increased from 1.1 to 3.6 per person as the state expenses increased, that positively reflects on the population's health condition [25]. But this rate is still less than that of European countries (7.5 per person), which is caused by the circumstance that patients are less motivated to go to a doctor for prevention and decide to receive medical service only when they are in critical condition [26]. Patients prefer hospital service [27, 28]. According to the Ministry of Health, only 50.9% of the patients have referred to the primary healthcare facilities [29]. All this shows that the primary healthcare system cannot fulfill the role of the so-called 'gatekeeper'. In general, the primary healthcare system has not developed in Georgia [30].

CONCLUSION AND RECOMMENDATIONS

The average life expectancy has increased for recent 25 years. The maternal and children's mortality rate has decreased, healthcare expenses have become higher and outpatient referral rate has also become of more constant character. All these have a positive influence on the people's health as well as country's economic growth. However, the state expenses on healthcare and outpatient referral rate are far below the European level. As the health capital fulfills significant role in terms of the country's economic growth in a long-run perspective, it is highly advisable to promote the development of the primary healthcare system and taking WHO recommendations concerning state healthcare expenses into account.

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ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

Not applicable

HUMAN AND ANIMAL RIGHTS

No humans/ animals were used for the studies that are bases of this research.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest, financial or otherwise.

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REFERENCES

[1] McConnell C, Brue S, Flynn S. Economics: Principles, Problems, and Policies. McGraw-Hill Education 2011.

[2] Schultz T. Investment in human capital. Am Econ Rev 1961; 51(1): 1-17.

[3] Becker G. Human capital. New York: Columbia University Press 1975.

[4] Becker G. Human capital: A theoretical and empirical analysis with special reference to education. 2nd ed. New York: National Bureau of Economic Research 1975.

[5] Grossman M. The demand for health: A theoretical and empirical investigation. New York: Columbia University Press 1972.

[6] Preston SH. The changing relation between mortality and level of economic development. Popul Stud (Camb) 1975; 29(2): 231-48. [http://dx.doi.org/10.1080/00324728.1975.10410201] [PMID: 11630494]

[7] Sala-i-Martin X. On the health poverty-trap health and economic growth: Findings and policy implications. Cambridge: The MIT Press 2005.

[8] Barro R. Health and economic growth, mimeograph. Pan American Health Organization 1996.

[9] Knowles S, Owen P. Education and health in an effective-labour empirical growth model. Econ Rec 1997; 73(223): 314-28. [http://dx.doi.org/10.1111/j.1475-4932.1997.tb01005.x]

[10] Howitt P. Health, human capital and economic growth: A schumpeterian perspective. Cambridge: The MIT Press 2005.

[11] Shultz T. Productive effects of health. Cambridge: The MIT Press 2005.

[12] Cai L, Kalb G. Health status and labour force participation: Evidence from Australia. Health Econ 2006; 15(3): 241-61. [http://dx.doi.org/10.1002/hec.1053] [PMID: 16229055]

[13] Bloom D, Canning D. Population health and economic growth, commission on development and growth. World bank working paper 2008; 24.

[14] Kalemli-Ozcan S, Ryder H, Weil D. Mortality decline, human capital investment and economic growth. J Dev Econ 2000; 62(1): 1-23. [http://dx.doi.org/10.1016/S0304-3878(00)00073-0]

[15] Miguel E. Health, education and economic development Health and economic growth: Findings and policy implications. Cambridge: The MIT Press 2005.

[16] Case A, Fertig A, Paxson C. The lasting impact of childhood health and circumstance. J Health Econ 2005; 24(2): 365-89. [http://dx.doi.org/10.1016/j.jhealeco.2004.09.008] [PMID: 15721050]

[17] Human Development Report. United Nations Development Programme 2015

[18] Silagadze A. Post-Soviet paradoxes of unemployment rate. Bulletin of the Georgian National Academy of Sciences 2017; 11(1): 136-41.

[19] Silagadze A. History of Georgian economic thought: Relation between the center and the region. Bulletin of the georgian national academy of sciences 2017; 11(4): 138-43.

[20] Papava V. The problem of the catch-up effect and post-crises economic growth in the world leading countries. Bull Georgian Natl Acad Sci 2016; 10(4): 97-104.

[21] Verulava T. Pension system in south caucasus: Challenges and reform options. Bull Georgian Natl Acad Sci 2018; 12(1): 143-50.

[22] Maghlapheridze N, Chodrishvili M. Average lfe expectancy changes analysis in georgia Report of public policy research and training Center policy. 3rd ed. Ilia State University 2014.

[23] Verulava T, Maglakelidze T. Health financing policy in the south caucasus: Georgia, armenia, azerbaijan. Bull Georgian Natl Acad Sci 2017; 11(2): 143-50.

[24] Asatiani M, Verulava T. Georgian welfare state: Preliminary study based on esping-andersen's typology. Econ Sociol 2017; 10(4): 21-8. [http://dx.doi.org/10.14254/2071-789X.2017/10-4/2]

[25] Verulava T, Jorbenadze R, Barkalaia T. Introduction of universal health program in Georgia: Problems and perspectives. Georgian Med News 2017; 262(262): 116-20.

[PMID: 28252441]

[26] Verulava T, Jincharadze N, Jorbenadze R. Role of primary health care in re-hospitalization of patients with heart failure. Georgian Med News 2017; 264(264): 135-9.
[PMID: 28480866]

[27] Verulava T, Gabuldani M. Accessibility of urgent neurosurgery diseases by the state universal healthcare program in Georgia (country). Gazi Medical Journal 2015; 26(2): 42-5.

[28] Verulava T, Jorbenadze R, Karimi L, Dangadze B, Barkalaia T. Evaluation of patient satisfaction with cardiology services. Open Public Health J 2018; 11: 201-8.
[http://dx.doi.org/10.2174/1874944501811010201]

[29] Verulava T, Sibashvili N. Accessibility to psychiatric services in georgia. J Psy: Open Access 2015; 18(3): 1-5.

[30] Gotsadze G, Tang W, Shengelia N, Zoidze A. Determinants analysis of outpatient service utilisation in Georgia: Can the approach help inform benefit package design? Health Res Policy Syst 2017; 15(1): 36.
[http://dx.doi.org/10.1186/s12961-017-0197-5] [PMID: 28464954]