

Measuring the Future Potential of a Country in Terms of Human Capital

Adina Titei

"Ovidius" University of Constanta, Faculty of Economic Sciences, Romania
adinatitei@yahoo.com

Abstract

This paper is focused on the human capital as source of increasing productivity and on the future potential productivity for a child born today, using Human Development Index (HCI) developed by World Bank. Considering education and health as the main factors which determine the human capital productivity, the index measures how productive it will be at 18 years old a child born today, compared to a person with complete education and full health. For Romania in 2020 the value 0.58 shows that only 58% represents the potential productivity compared to a maximum possible for complete education and full health. At UE level, not only for Romania, but also for the other countries efforts must be made to increase the general level of education and to achieve a state of health that allows the use of the entire productive potential of human capital.

Key words: human capital, Human Capital Index, productivity, education, health

J.E.L. classification: I15, I24, J24

1. Introduction

In a large sense, human capital means the stocks of knowledge, the worker abilities, acquired or innate, the attitude for the tasks and others capabilities which can contribute to the increasing productivity. At present there are a lot of studies about the components of the human capital, which debate the advantages and disadvantages of considering one element or another as part of the human capital. These also bring to attention the possibility to quantify or not some components, in the context of labour economics.

So, it is not enough to consider the years of schooling as part of a human capital. Starting with it, we must take into consideration the school quality, type of training process or the attitude towards tasks or work. This type of analysis could help us understand the differences in worker earnings and the productivity potential as a key which can reduce the risk of poverty.

2. Literature review

There are numerous theories about the human capital which explain how it can contribute to the productivity and how it determines the level of earnings. The term "human capital" was introduced for the first time in modern economic literature by Schultz, who described how contribute the stock of education contributes to the national income growth. (Schultz, 1961). Another important theory was developed by Becker and Mincer. They analyse the education and training as an investment in the human capital and how these investments generate lifetime earnings at different levels of investment. Moreover, they analyse the investment in education and training in terms of returns, separating costs in direct expenses and in earnings that it gives up on for short time, earnings offset in the future by higher lifetime earnings. Using this reasoning, they argue how women and minorities that invest by far less in education may have lower earnings and a high risk to be in a state of poverty. (Becker, 1962, 1964) (Mincer, 1958, 1962, 1970, 1974)

Bane and Ellwood find that young people and woman moving out of parent's home have a higher relative risk of poverty, but this is just temporary. On average in three years, the accumulated human capital allows them to have a decent income. (Bane and Ellwood, 1986)

Education is the key of productivity. One additional year of school increase the wages with 9 % for men and with 10% for women in UK. (Walter and Zhu, 2003). Similar, in the USA an additional year of schooling could mean between 12 and 16 per cent increase in wages. (Ashenfelter and Krueger, 1994). For Australia, significant higher wages are for higher levels of education. An employee with 12 years of education earned around 13 per cent more in case of men and 10 per cent more in case of a women, than a person with only 11 years of education. Also, university education adds about 40 per cent to employee's earnings. (Forbes et al., 2010)

A good health is a condition to increase the productivity. The investment in health can reduce a future potential productivity loss; comparing the original investment in health with productivity losses we will discover that the long-term benefits are greater if we invest in the health of the new generations. (Lofland et al., 2004). If for the young children adequate nutrients are not provided and the exposure to diseases is not limited, there are serious risks that their brain development will not be complete. The problems like lower cognitive or socioemotional skills could appear in their adulthood. The stunting can generate poor outcomes throughout the lifecycle across, that because the undernutrition in childhood marks the cognitive development. (Galasso et al., 2016)

3. Research methodology

In this paper we intend to discuss the real productivity of a generation compared to potential productivity determined by complete education and full health. In this regard, we analyse the components and values for Human Capital Index (HCI), a composite index published by the World Bank Group which brought it to our attention for the first time in 2018 and subsequently updated in 2020.

4. Measuring the human capital

The goal of the project is to measure the human capital expected after 18 years for a child born today. HCI tries to highlights how education and health of the next generation shape the potential productivity for it. The range for Human Capital Index is 0 to 1. For example, a 0.6 value means that a child born today will use only 60% of a total productivity generated by full health and complete education, the 1 value means that the full potential productivity is reached.

The components of Human Capital Index (HCI) are survival, school and health. For survival, the first component of the index, it is used an under-five mortality rate, because not all the new born will survive until the moment they begin to use the human capital accumulation. For the second component, school, is taken into account simultaneously the quantity and the quality of education. Regarding the quantity education, the number of years of school that a child can expect until 18th birthday is used, so the maximum value is 14 years, if we consider that preschool starting at the age of 4. For the quality of education, it is used a harmonized test score (HTSs) is used, that converts the expected years of school into quality-adjusted years of school. Consequently, real 10 years of school could mean less for quality-adjusted years of school. The last but not least important component, health, include adult survival rates and healthy growth among children under-5. Adults survival rates is determined as the share of 15-year-old who survive until age 60 and the healthy growth among children under age 5 is measured as the fraction of children who are not stunted.

All these components are first converted into a relative contribution to productivity and after that it is calculated a single index is calculated, summarizing in units of productivity the potential of a generation born today to achieve, at age 18th, the full productivity potential for complete education and full health.

In this paper we will focus on the European Union countries, analysing the potential of productivity for Romania compared to other countries with similar condition. We will take into account both components, education and to health, both equally important to attain the goal that a child born today to reach his/her full productivity potential in adulthood.

Table no. 1 The Hierarchy after HCI for EU Countries

| Country | HUMAN CAPITAL INDEX 2020 | Probability of survive to age 5 | Expected Years of School | Harmonized Test Scores | Learning-Adjusted Years of School | Adult Survival Rate |
|--|--------------------------|---------------------------------|--------------------------|------------------------|-----------------------------------|---------------------|
| Countries with higher HCI Values (more than 0.75) | | | | | | |
| 1.Finland | 0.80 | 1.00 | 13.7 | 534 | 11.7 | 0.93 |
| 2.Sweden | 0.80 | 1.00 | 13.9 | 519 | 11.6 | 0.95 |
| 3.Ireland | 0.79 | 1.00 | 13.9 | 521 | 11.6 | 0.94 |
| 4.Netherlands | 0.79 | 1.00 | 13.9 | 520 | 11.5 | 0.95 |
| ... | ... | ... | ... | ... | ... | ... |
| 8.France | 0.76 | 1.00 | 13.8 | 510 | 11.3 | 0.93 |
| 9. Belgium | 0.76 | 1.00 | 13.5 | 517 | 11.2 | 0.93 |
| 10.Cyprus | 0.76 | 1.00 | 13.6 | 502 | 10.9 | 0.95 |
| 11.Denmark | 0.76 | 1.00 | 13.4 | 518 | 11.1 | 0.93 |
| Countries with medium HCI Values (between 0.75 and 0.70) | | | | | | |
| 12.Poland | 0.75 | 1.00 | 13.4 | 530 | 11.4 | 0.89 |
| 13.CzechRepublic | 0.75 | 1.00 | 13.6 | 512 | 11.1 | 0.92 |
| 14.Germany | 0.75 | 1.00 | 13.3 | 517 | 11.0 | 0.93 |
| 15.Austria | 0.75 | 1.00 | 13.4 | 508 | 10.9 | 0.94 |
| ... | ... | ... | ... | ... | ... | ... |
| Countries with low HCI Values (under 0.70) | | | | | | |
| 23.Greece | 0.69 | 1.00 | 13.3 | 469 | 10.0 | 0.93 |
| 24.Luxembourg | 0.69 | 1.00 | 12.4 | 493 | 9.8 | 0.94 |
| ... | ... | ... | ... | ... | ... | ... |
| 26.Bulgaria | 0.61 | 0.99 | 12.3 | 441 | 8.7 | 0.87 |
| 27.Romania | 0.58 | 0.99 | 11.8 | 442 | 8.4 | 0.88 |
| <i>Average UE Countries</i> | 0.7312 | 0.9961 | 13.3501 | 502.5130 | 10.7481 | 0.9190 |

Source: Processing after Human Capital Index 2020, www.worldbank.org/humancapital

5. Findings

Studing the values for the main components we conclude as that Romania is on the last position for HCI Index in European Union. The value 0.58 show as that the next generation born today will reach only 58 per cent of possible productivity at the age 18th, under the condition of complete education and full health. As you see the average is 0.7312 at UE level and the value for Romania is 23% lower that the EU average.

In terms of health, in Romania the probability of survive until the age of 5 is 0.99, a value very close to 1, but, at the same time, the value for adult survival rate is just 0.88, with 1 percent higher that Bulgaria and with almost 4 percent lower that EU average. In terms of education, Romania has only 11.2 years of schooling on average, while the EU average is 13.35 years. One of the most likely causes is dropping out of school, especially in rural areas. The harmonized test school 441 is with 12.51% lower than EU average and also the indicator representing learning-adjusted years of schooling is very small – 8.4 years on average, with 21.84% lower than average value at UE level.

Where can Romania recover? Each component is important; a small advance in education or health could mean a great start to a full productivity. If education and health become a national priority and sufficient funds will be allocated for those two areas, then there is a chance that future generations will use their full productive potential.

6. Conclusions

The investments in human capital are important for all the countries. They are important even for the richest countries if they want to maintain their successful position in the global economy. But it is more important for the poorest countries, for the fragile economies. Therefore, to invest in people and focusing on the human capital potential it still need. The investments in human capital, in the quality education or in the health systems improvement, could help the countries to reduce poverty and promote sustainable growth.

The values for HCI reflect serious human capital crisis, with implications for the economic development. The physical capital productivity together with the human capital productivity contribute to the economic growth as part of the economic development. So, the investments in quality education, in health care or in good quality nutrition could create a more inclusive society and could eliminate the extreme poverty.

Romania deserves to become a country that can use its full productive potential, in which the population will have higher incomes, better health and complete education. Only in this way we can become an inclusive society, with a modern economy and with a qualitative life.

7. References

- Ashenfelter, O. and Krueger, A. B., 1994. Estimating the Returns to Schooling Using a New Sample of Twins. *American Economic Review*, 84 (December): 1157–1173;
- Becker, G. S., 1962. Investment in Human Capital: A Theoretical Analysis. *The Journal of Political Economy*, 70(5), pp. 9–49;
- Becker, G. S., 1964. *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, Columbia University Press, New York;
- Bane, M.J. and Ellwood, D.T., 1986. Slipping into and out of Poverty: The Dynamics of Spells - *The Journal of Human Resources* 12:1-23;
- Forbes, M., Barker, A., Turner, S., 2010. The Effects of Education and Health on Wages and Productivity, Productivity Commission. *Staff Working Series Paper*, Melbourne, March;
- Galasso, E.; Wagstaff, A., 2016. The Economic Costs of Stunting and How to Reduce Them. *Policy Research Note 5 (March)*, World Bank, Washington, DC.
- Lofland, J.H., Pizzi, L., Frick, K.D., 2004. A review of health-related workplace productivity loss instruments. *Pharmacoeconomics* 22, pp. 165–184.
- Mincer, J., 1958. Investment in Human Capital and Personal Income Distribution. *The Journal of Political Economy*, 6(4), pp. 281–302;
- Mincer, J., 1962. On-the-Job Training: Costs, Returns, and Some Implication. *The Journal of Political Economy*, 70(5), pp. 50–79;
- Mincer, J., 1970. The Distribution of Labour Incomes: A Survey with Special Reference to the Human Capital Approach. *Journal of Economic Literature*, 8(1), pp. 1–26;
- Mincer, J., 1974. *Schooling, Earnings, and Experience*. New York: Columbia University Press;
- Schultz, T. W., 1961. Investment in human capital. *The American Economic Review*, 51, pp. 1-17;
- Walker, I. and Zhu, Y., 2003. *Education, Earnings and Productivity: Recent UK evidence, Labour Market Trends*, March 2003:145–152.
- World Bank Group, 2020. *Human Capital Index, 2020 Update*.