

Population Growth and Development

Education as Factors of Economic Growth

Armine Aghajanyan

Abstract Human capital includes the accumulated investment in such areas as education, training, migration. The knowledge and skills that the worker has and who acquired them through education and training, including the skill obtained with experience constitute a certain stock of productive capital. The monetary value of the capital stock is defined as the discounted stream of future income from its use during a person's life, that is dependent on the wage rates at which human capital can "rent" employers in the labor market, interest rates and the expected duration of employment. Job migration and extend the value of human capital specific people by increasing its price (wages, paid per unit of time for the use of entrepreneurs the knowledge and skills of the employee).

Keywords Economic growth factors - Population.

JEL Classification O-043

Introduction

Approximately 12 thousand years ago, during the Neolithic revolution, when humanity passed to farming, the world population did not exceed 5 million. From Neolithic to the XVIII century, the population growth rate has been very low, with an average around 0,002% per annum. By 1750, population growth has increased to 0.3% per year, that is increased 150-fold.¹

By 1950 it rose further by 3 times and amounted to almost 1% per year, and reached a peak in 1970 - 2.3% per year. In the 1980-1990 years it was at the level of 1.7% per year. This phenomenal acceleration of population growth began in XVIII-XIX centuries in England and America, then in Western Europe. Moreover, population growth in Europe and North America was accompanied by an increase in per capita income. The very logical theory developed by T. Malthus, according to which the population growth leads to impoverishment of the majority of its mass and an increase in mortality and per capita income growth of the population leads to an increase in fertility, has not been confirmed in practice and has been abandoned by most economists of the XX century.² However, T. Malthus' theory of the logic is used in the

1 Todaro M.P. Economic development: a textbook. M.: UNITY, 1997, pp 171, 172.

2 Becker G. S., Glaeser E. L., Murphy K. M. Population and Economic growth. // AEA Papers and Proceedings. 1999. № 2, V. 89. P. 145, 146.

Armine V. Aghajanyan (✉)

Department of Economic Theory and the Issues of Transition Period Economies,
Institute of Economics and Business, Russian-Armenian University, Yerevan, Armenia
e-mail: aghajanyanarmine88@gmail.com

neoclassical theory of growth as the assumption of declining marginal product of labor with an increase in labor supply. This logic holds for the assumption of the absence of technological and social progress. As noted by many leading contemporary economists, advocates of the theory of human capital, in a modern urban economy, increasing population density, caused by the growth of population, contributes to the specialization of people and a great investment in human capital, as well as to the acceleration of the accumulation of new knowledge. This “increasing returns” from specialization and knowledge increases, per capita income, apparently, to a greater extent than the “diminishing returns” in sectors with limited resources (mining and agriculture).³

What factors contribute to the growth of economic performance with growth of population and its density?

Apparently, the most important factor in improving the overall efficiency of the economy with an increase in its scale is urbanization. G. Becker, E. Glaeser and C. Murphy noted that the concentration of population in cities is very important for the economy, as in the cities there is extensive division of labor and more human capital and new knowledge is produced. Moreover, the high population density in cities contributes to a highly specialized by occupation, and the production and transmission of knowledge to future generations. As is known, in the neoclassical model it is believed that the rate of return on investment in physical capital is reduced with an increase in per capita stock of physical capital population. The corresponding assumption for human capital is less plausible, since human capital is the knowledge of prisoners in humans. The benefits of the accumulation of additional knowledge in people depend more positively than negatively on knowledge they already have. These assumptions underlie the dominant concept of learning in the educational pedagogy, where the success of learning higher mathematics and other disciplines depends on the degree of assimilation of the functional blocks of the elementary concepts.⁴

Another argument in favor of population growth as a factor for economic growth is found in the textbook of M. Todaro: “Over a large population presents a greater consumer demand, providing economies of scale production and lower production costs, and also increases the supply of low-cost labor in order to achieve large production volumes”.⁵ Economies of scale achieved by population growth and density, especially in big cities, that is urbanization contributes not only to the accumulation of human capital, but also reduce the production costs of conventional products.⁶

Economists-“revisionists” counterrevolutionary neoclassical school of the 1980s George. Simon and N. Eberstadt argued, for example, that free markets are able to adapt to any deficits arising from population growth ... In the end, free markets and human ingenuity permit all the problems of population growth.

D. Acemoglu tried to theoretically describe the mechanism of occurrence of social increasing returns from investment in human capital. The growth of return on investment, both in human and in physical capital, is connected to the emergence of externalities in the accumulation of human capital as a reserve for the whole country, and per employee. One of these social effects associated with the expectations of investors.⁷ If the investment in human capital is considered to increase its stock increasing the number of qualified professionals, firms expecting expansion

3 Becker G. S., Glaeser E. L., Murphy K. M. Population and Economic growth. P. 145, 146.

4 Becker G. S., Glaeser E. L., Murphy K. M. Population and Economic growth. P. 145, 148.

5 Todaro M.P. Economic development: a textbook. P. 191.

6 Becker G. S., Murphy K. M., Tamura R. Human Capital, Fertility and Economic Growth // J. P. E. 1990. Pt. 2. № 5, V. 98. P. 15, 16.

7 Acemoglu D. A Microfoundation for social Increasing Returns in Human Capital Accumulation // The Quarterly Journal of Economics. 1996. V. CXI, Issul 3. P. 779–804.

of the labor supply of specialists in the labor market and a corresponding increase in the impact of physical capital, increase investment in physical capital.

This means that at least part of the external effects occur due to changes in the value of future pairs of physical and human capital firms. These effects increase the impact of both human and physical capital with the growth of the stock of human capital occurring in individual firms, regions and entire countries. Increased return on investment in human capital in the major cities is attracting skilled labor.

Migration flows of specialists - the "brain drain" - also exist in the less developed countries. These facts confirm the existence of externalities in the accumulation of human capital and increasing population density. Therefore, population growth with a corresponding increase in its quality and level of education is an essential factor of economic development and growth of effectiveness. Consider the role of human capital accumulation in the modern world. Human capital includes the accumulated investment in such areas as education, training, migration. The knowledge and skills that the worker acquired through education and training, including the skill obtained with experience, constitute a certain stock of productive capital.

The monetary value of the capital stock is defined as the discounted stream of future income from its use during a person's life that depends on the wage rates at which human capital employers can "rent" in the labor market, interest rates and the expected duration of employment. Job migration and extend the value of human capital specific people by increasing its price (wages, paid per unit of time for the use of entrepreneurs the knowledge and skills of the employee). The wealth of the society as a whole can be viewed as a set of human capital and material (physical) capital, not directly associated with people. The total wealth of the United States in 1991 was estimated at approximately 54.5 trillion dollars, of which 26 trillion (48%) accounted for the human capital.⁸

Conclusion

According to the World Bank, as part of the national wealth of the United States the main production assets (buildings and structures, machinery and equipment) account for only 19%, natural resources - 5%, and human capital - 76%. In Western Europe, the corresponding figures are 23.2%, 2.8% and 74%, in Russian - 10%, 40% and 50%. The relevance of studies of human capital production and use of machinery is growing rapidly due to the increased role of knowledge and scientific and technological progress in the modern economy. Apparently, the quality of the workforce, level of education and training will be in the XXI century not only an important factor in economic progress, but also the basic condition for the competitiveness of national economies. In practice, public spending on higher education has leveled in 2003 with private, as evidenced by the statistics⁹

The relevance of studies of human capital production and use of the mechanisms intensified due to the increased role of knowledge and scientific and technological progress in the modern economy. In the early 1990s, the share of education expenditures in GDP was in France - 7.1%, Japan - 6.3% in the US - 6.1%, in Germany - 4.5%, while in Russia only 2.7%, which is 2-3 times lower than in developed countries. As part of a person's productive capacity are also present biologically and socially inherited characteristics, such as the supply of health and intellectual capacity, moral and ethical norms, values, etc.¹⁰

Job migration and extend the value of human capital specific people by increasing its price, that

8 Eisner R. Extended Accounts for National Income and Production // Journal of Economic Literature 1988.

9 Dobrynin A.I. Dyatlov S.A., Tsyrenova E.D. Human capital in transitive economy. P. 107, 108.

10 Dobrynin A.I. Dyatlov S.A., Tsyrenova E.D. Human capital in transitive economy. P. 107, 108.

is wage rates received per unit of time for the use of the knowledge and skills of the employee by entrepreneurs. The wealth of society as a whole can be viewed as a set of human capital and material (physical) that are not directly related to the people.

References

- Todaro MP (1997) Economic development: a textbook. M. : UNITY, p. 171, 172, 191
- Becker GS, Glaeser EL, Murphy KM (1999) Population and Economic growth. // AEA Papers and Proceedings. no2, V. 89. p. 145, 146, 148
- Becker GS, Murphy KM, Tamura R (1990) Human Capital, Fertility and Economic Growth J. P. E. Pt. 2. no. 5, V. 98. p. 15, 16.
- Acemoglu DA (1996) Microfoundation for social Increasing Returns in Human Capital Accumulation. The Quarterly Journal of Economics. VCXI (3): 779–804.
- Eisner R (1988) Extended Accounts for National Income and Production . Journal of Economic Literature
- Dobrynin AI, Dyatlov SA, Tsyrenova ED (1999) Human capital in transitive economy. p. 107, 108.