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ENSURING THE PRODUCTIVITY OF HUMAN RESOURCES: EVALUATION OF FINANCING AND PARTNERSHIP MODELS BETWEEN HOUSEHOLDS, STATE AND BUSINESS

Abstract. The article evaluates the funding structure and partnership models in ensuring human resource productivity. The government's main task is to implement the economic policy that would stimulate the growth of the country's economy, which is achieved through the active participation of human resources in social production and can be identified by their productivity. Increasing labor productivity requires both fundings for human resources development programs, namely education and health care, and the formation of models of partnerships between the subjects of its provision (government, business, and households). Revitalization of human resources involves meeting the essential human needs, which are defined in the concept of human development, the highest priority of which is education and health.

Each country forms its own partnership model of subjects for financing to ensure economic growth and productivity of human resources. The object of the study is the model of partnership in providing the growth of productivity of human resources in the economies of countries that have excellent tools for financing human development programs, namely the United States, Great Britain, Germany, Sweden, and Ukraine.

In this study, we used correlation regression analysis to evaluate the models of a partnership between households, government, and businesses in financing education and health to ensure increasing productivity of human resources. We proved the crucial role of public funding of health care systems in ensuring the growth of human productivity in Germany, the United States, Britain, and Ukraine, and in Sweden — socially responsible business. With regard to education, the priority in the partnership model in the United States belongs to the business, in Germany to the state, and in other countries, the participation of all partners is equal. Ukraine has relatively low productivity of human resources. Therefore, it is essential to implement measures to improve it and transform the existing funding structure for human development programs and partnership models to ensure its growth.

Keywords: management, financing, education, health, social policy, economic growth.

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ЗАБЕЗПЕЧЕННЯ ПРОДУКТИВНОСТІ ПРАЦІ ЛЮДСЬКИХ РЕСУРСІВ: ОЦІНЮВАННЯ МОДЕЛЕЙ ФІНАНСУВАННЯ І ПАРТНЕРСТВА ДОМОГОСПОДАРСТВ, ДЕРЖАВИ ТА БІЗНЕСУ

Анотація. Проведено оцінювання структури фінансування і моделей партнерства в забезпеченні продуктивності праці людських ресурсів. Основним завданням уряду є реалізація економічної політики, яка б стимулювала зростання економіки країни, яке досягається за рахунок активної участі людських ресурсів у суспільному виробництві і може бути ідентифікована продуктивністю їхньої праці. Зростання продуктивності праці вимагає як фінансування програм розвитку людських ресурсів, так і формування моделей партнерських відносин між суб'єктами його забезпечення (урядом, бізнесом і домогосподарствами). Активізація діяльності людських ресурсів передбачає задоволення найвагоміших потреб людини, які визначені в концепції людського розвитку, найпріоритетнішими з яких є освіта і здоров'я.

Кожна країна формує власну модель партнерства суб'єктів фінансування в забезпеченні економічного зростання та продуктивності праці людських ресурсів. Об'єктом дослідження є моделі партнерства в забезпеченні зростання продуктивності праці людських ресурсів в економіках країн, які мають відмінні інструменти фінансування програм людського розвитку, а саме: США, Великобританії, Німеччини, Швеції та України.

У дослідженні використано метод кореляційно-регресійного аналізу і проведено оцінювання моделей партнерства домогосподарств, держави і бізнесу у фінансуванні освіти й охорони здоров'я досліджуваних країн для забезпечення продуктивності праці людських ресурсів. Доведено, що вирішальна роль у забезпеченні зростання продуктивності праці людських ресурсів у моделі партнерства в системі охорони здоров'я належить державі в економіках Німеччини, США, Великобританії та України, а у Швеції — соціально відповідальному бізнесу. У системі освіти пріоритет у моделі партнерства у США належить бізнесу, у Німеччині — державі, а в інших країнах він не виокремлюється, а участь усіх партнерів є рівнозначною. Україна має досить низьку продуктивність праці людських ресурсів, а тому важливим завданням є реалізація заходів щодо її підвищення, а відтак трансформації наявної структури фінансування програм людського розвитку і моделі партнерства в забезпеченні її зростання.

Ключові слова: менеджмент, фінансування, освіта, охорона здоров'я, соціальна політика, економічне зростання.

Формул: 0; рис.: 1; табл.: 1; бібл.: 32.

Introduction. Labor productivity is one of the macroeconomic criteria of the state's development level and the object of their public policy and governance. Management decisions in each country are based on ideology (values, priorities) and fiscal policy (resources formation and distribution rules). At the end of the twentieth century, when humanity entered the post-industrial era, the world ideology about the role and participation of human resources in society has changed. According to it, it is expedient both create processes for people's choices to expand and take care of their level of well-being in society.

Human resources, which are institutionally represented in the economy by households, form financial resources and consume them using social services provided by the business and the state through fiscal tools. In particular, the state creates an institutional environment and partnership models in funding human development programs (education and health) and productivity of human resources thus ensures.

In today's world, human resources are assets in the economy because in any activity, they can increase the added value multi-fold, i.e., they can ensure productivity growth. Nevertheless, human resources can increase labor productivity only when their development is funding, especially education and health. The economic and social development level of countries, vectors, and public policy priorities determine the features, structure, and parity of such funding, the prominent members of which are households, businesses, and the state/government. Therefore, the study of the peculiarities in the structure and partnership in funding the human development programs (education and health care) for the productivity of human resources increasing, and, consequently, economic growth in different countries, is relevant for Ukraine with the possibility of restoring their experience for the building its social policy model.

Research analysis and task setting. Factors influence on labor productivity are reflected in the theories of human capital and human development. The most substantiated and studied are the links between labor productivity and the labor market and the structure of employment (Easterly W. [1], Badunenko O. [2], Hanushek E. [3], Lisoher L. [4], Lukianenko I. [5], Pietschmann I. [6], etc.), labor productivity and quality of human resources, in particular, the level of their human capital embodied in education and health (Barro R [7; 8], Becker G. [9], Ezoja A. [10], Pritchett L. [11; 12], Weil D. [13], etc.), labor productivity and efficiency of human resources, in particular, the number of hours worked (Hypelson V. [14], Collin M. [15]). On the other hand, aspects of the relationship between labor productivity and fiscal policy, particularly partnership models in funding human development programs, have been insufficiently studied.

Economists have proven that innovative companies demand skilled human resources involved in the creation, redistribution, and consumption of technological products, thus being the engines of economic growth and productivity. In contrast, the lack of economic diversification and weak participation in global value chains and world trade does not create a critical mass of demand for «knowledge» people, namely the most productive [16]. In this context, according to the conclusions of the Higher School of Economics [14], the qualitative balance of supply and demand in the labor market is a consequence of the institutional support of the economy and its willingness to transform human capital into a high level of productivity.

Issues of human capital formation and its connection with economic growth are studied in the theory of human capital. Becker [9] considered spending on education and health care as an investment in human capital and treated them as a source of economic growth similar to traditional types of investment. Several prominent researchers, like Pritchett and Filmer [11], Benhabib and Spiegel [17], as well as Barro, Mankiw, and Sala-i-Martin [8], focused on the study of the impact of education on economic growth and, consequently, the productivity of human resources. In most cases, to assess the impact of education on economic growth, the scholars choose the number of years spent on this education. However, Benhabib and Spiegel [17] found no link between the increase in the number of years spent on education and GDP growth per capita. Nevertheless, they found a link between the initial level of training (education) and subsequent productivity. Other researchers, like Hanushek and Woessmann [3] and Pritchett [12], highlighted that the metrics, i.e., the length of years spent on education, are unsuccessful, even though the funds spent for the

implementation of the educational process are enormous. It goes without a doubt that investing in education ensures the formation of human capital. Easterly [1] concludes that countries with a high level of human capital develop faster due to its indirect impact on economic growth through increasing labor productivity. Barro [8] also comes up with the same conclusion. Klenow and Rodriguez-Clare [18] and Bernanke and Rotemberg [19] found that at a growth rate of GDP per capita by one percentage point, only 0.06 percentage points are due to human capital growth. At the same time, productivity growth is responsible for 0.91 percentage points of each percentage point of output growth that exceeds the average level. In contrast, physical capital is responsible for only 0.03 percentage points of growth.

We agree with Bils and Klenow [20], who confirmed that it is relatively not education (schooling) that causes growth, but on the contrary — growth «entails» education. Since in cases where the level of salary is higher for a highly skilled worker, and it grows faster, the value and cost of education are higher than in cases where such growth does not occur. While sharing the opinion of Easterly [1], we believe that education has a positive effect on growth only when the state (i.e., government) creates more incentives for growth, rather than redistribution, when it promotes education by providing free schooling and requiring children to attend school. However, administrative attitudes towards general primary education do not create incentives for future investments that are important for development. The training of highly qualified personnel will be a reaction to the incentives for the investment into the future. Furthermore, participation in formal school education may not be sufficient to increase the skills of the population.

Healthcare funding (expenditure on health) is also an investment in providing the conditions for increasing the productivity of human resources. Moreover, in the McKinsey Global Institute Report [21] designate the exact impact of health and education on economic growth and productivity. Their research shows that about one-third of economic growth in developed economies in the last century can be explained by the improvement in the health of the global population. According to the same research, improving health can contribute \$ 2.4 trillion to Europe's GDP by 2040. The public benefits of such health improvements far outweigh the economic benefits and could amount to about \$ 8 trillion by 2040. For every dollar invested in improving the health of Europe's population, the economic benefits can be around \$ 2.50.

But in practice, ensuring productivity growth by optimizing education and health care funding models is not easy. There is no perfect model of partnership in funding, which is determined not only by the capabilities of states (government) but also by their needs. On the one hand, economic (fiscal) policy should be simple. Vito Tanzi [22] emphasizes this, as exemplified by general health and education programs in Nordic countries and several European states. On the other hand, it must provide a choice, such as the system of functioning of health care in the United States. It is based on health insurance, mainly with the participation of households. It provides a large set of plans in such state health insurance programs as «Medicare» and «Medicaid» (for example, there are 47 plans in Alaska, 63 plans in West Virginia). However, such diversity makes it challenging to make the right decisions (to make the right choice). For instance, Taler & Sunstein [23] calculated an annual difference of almost 700 US dollars between a randomly selected plan and the cheapest one. Therefore, it is essential to study and evaluate partnership models in ensuring the productivity of human resources in the economies of countries with different funding structures for education and health care. Finally, we should note that the financing of education and health sector is a part of state's sovereignty, sustainable development [24] and eurointegration perspectives [25].

Methodology and research methods. To assess the partnership models between households, state (government), and business in ensuring the growth productivity of human resources, we conducted a correlation-regression analysis between the indicators labor productivity per person employed and expenditures on education and healthcare per capita by sources of that funding. GDP per person employed was chosen as the resulting indicator that characterizes the productivity of the employed population (human resources).

The following components comprehensively represent indicators of expenditure on health: public expenditure on health; current private expenditures on health, which consist of out-of-pocket

expenditure and funds of corporations and non-profit organizations for prepaid voluntary health insurance or paid directly to health care providers; external health expenditure, including all financial revenues to the national healthcare system outside of the home country. The research period is 2000—2018.

Indicators of educational expenditure include total educational expenditures at all levels (All ISCED 2011 levels) for 2012—2017 (for EU member-states due to the lack of similar data for other periods) by the following types of sources: domestic general government expenditure; domestic private expenditure divided by the non-educational private sector and other non-educational private entities expenditure; expenditure of international organizations.

The information base of the study included statistical data of Organisation for Economic cooperation and development [26] on labor productivity indicators, World Bank [27] on health expenditure indicators for selected countries, European statistics [28], National Center for Education Statistics (USA) [29] and the State Statistics Service of Ukraine [30], respectively, for European countries, the USA and Ukraine on educational expenditures by types of sources.

There are five countries with the most common models of social security in education and health are selected for research, namely: Sweden — with its inherent socially-oriented model, Germany — a conservative social democratic model, the United States — a typical liberal-market model, United Kingdom — the Anglo-Saxon model of social security, which is a transition between the liberal model of the United States and socially oriented in Sweden, and Ukraine, which is forming its model of social policy. Each country uses different tools for generating financial resources and implements other partnership models (participation of households, government, and business) with priorities in funding health care expenditures: in the United Kingdom and Sweden, primarily by states (government), in Germany — on a parity basis business and households, in the USA — households, in Ukraine — a combination of the state with broad involvement of households. In the financing models of education systems in studied countries, state funding predominates, as the state covers the most popular primary and secondary education expenditures.

Results. The considered countries have their partnership models (peculiarities in the ratio of expenditures on health and education systems according to their sources of origin and rates of change). The structure of education and health care funding are analyzed in the research. It is established that the largest share of public financing is in the United Kingdom and Sweden (more than 80%), the minor stake is in Ukraine (about 48%) and the United States (about 50%). In the United Kingdom and Ukraine, there is also external expenditure on health. In the United Kingdom, their share is consistently insignificant (about 0.01%), while in Ukraine, it is constantly growing (from 0.1% of total health expenditure per capita in 2000 to 1% in 2018). The value of GDP per person employed increases every year in all countries. However, in the case of EU member-states, the crisis year of 2009 is clearly positioned (*Fig.*).



Fig. Dynamics of GDP per person employed by countries

Source: compiled based on the data from the World Bank [27].

There is also one characteristic that all countries have in common: the lack of visible coincidence over the years or established long-term trends in the relationship between changes in

GDP per person employed (namely as productivity of human resources) and changes in expenditure on health and education. Nevertheless, the causal links between these indicators are also different.

The research evaluated the relationship between human resources productivity and partnership models (government, business, and household) in the funding of education and health care systems using correlation and regression analysis. It made it possible to determine the impact of the funding structure of education and health systems in terms of partnership entities on the productivity of human resources. As a result, the relationship for selected countries was established. In particular, it is proved that in the United Kingdom, an increase of 1% of domestic government and external health expenditures cause productivity of human resources by 0.33% and 0.45%, respectively (*Table*).

Table

The impact of expenditure on health and education on labour productivity of human resources (percentage points)

	Expenditure on Health				Expenditure on Education			
	From the State (Public Expenditure)	From Business (Private funds of corporations and non-profit organisations)	From Households (Out-of-Pocket Expenditure)	From Other Sources (External health expenditure)	From the State (General government)	From Business (Non-educational private sector)	From Households (Other non-educational private entities expenditure)	From Other Sources (International organisations)
Great Britain	0.33	-0.35	sir ¹	0.45	sir			
Germany	2.14	-2.10	sir	none	1.11	sir		
Sweden	sir	0.77	-0.48		sir			
USA	0.59	sir			-0.22	0.87	no data	
Ukraine	0.57	sir	0.28	sir	sir			

¹ Sir — statistically insignificant result.

Source: developed by the authors.

Private, predominantly out-of-pocket expenditures (households) on health contribute to a decrease in productivity of human resources by 0.35%. Thus, even though out-of-pocket expenditures are quite significant in the structure of private expenditures on health (up to 78% of the total amount of personal health expenditures & 16.7% of the total spending on health), they do not have a significant impact on the productivity of human resources.

Likewise, there are no confirmed links between the productivity of human resources and the expenditure on the education system. We can explain it due to both the small statistical sample and the results of research by other scientists, like Pritchett & Filmer [11], Benhabib & Spiegel [17], Barro, Mankiw, & Sala-i-Martin [8], Hanushek & Woessmann [3], Pritchett L. [12] and others. Moreover, the reason also includes the lack of a direct and indirect link between education and economic growth that has been found by Easterly [1].

In Germany, one of the countries representing insurance medicine and the public-private model of health care funding, public expenditures are about 78% of total health expenditures. In the structure of private funding sources, the share of out-of-pocket expenditure (household expenditure) is about 57%. Expenditure on education by the types of sources are distributed as follows: 78—83% are public expenditure, 16—20% are private expenditure (non-educational and other non-educational private entities), and 0.4% are costs of international organizations. The state’s participation in the national healthcare and education systems expenditures is also significant in terms of the formation and provision of human resources productivity. Namely, an increase in state expenditure on health by 1% contributes to the rise in human resources productivity by 2.14%. The corresponding increase in state funding on education by 1% stimulates growth by 1.11%. At the same time, private expenditures of corporations and non-profit organizations on health lead to a decrease in human

resources productivity by 2.10%. Other funding sources for health and education systems do not significantly impact human resources productivity.

Sweden demonstrates the social-oriented model of organization and funding of healthcare. It is characterized by a high share of state participation in expenditures on health and education: more than 80%. In the structure of private spending on health, 92—95% belongs to household out-of-pocket expenditures. There is no external funding of the healthcare system, whereas in education, the share of funding from international organizations is about 1% of domestic government spending. Performed analysis showed a statistically significant impact of private health expenditure on human resources productivity. For instance, business expenditures (corporations and non-profit organizations) directly impact the situation, and an increase of 1% causes an increase in human resources productivity by 0.77%. At the same time, the rise in household out-of-pocket expenditures on health causes a decrease in human resources productivity by 0.48%. As in the case of the United Kingdom, there has not been any link between educational expenditure and human resources productivity.

In the United States, there is a market (private) model of organization and funding of the healthcare sector. Public health expenditure is one of the lowest values among the selected countries and accounts for less than half of total spending. However, in the studied periods, it increased from 44% in 2000 to 50.4% in 2018. There is no international funding, whereas, in private expenditures, 78% is provided by businesses (corporations) and non-profit organizations. In contrast to other countries within the study, the United States has annual growth in labor productivity and health spending (excluding household expenditure in 2010) and education. However, McKinsey [21] found that health care expenditures are constantly rising and outpacing labor productivity growth.

The impact of business and households on health care is negligible. On the contrary, a further increase in state expenditure on the healthcare system may increase labor productivity by 0.59%. Furthermore, the United States has a specific feature: the relationship between educational spending and human productivity. This relationship leads to increasing private expenditure by 1% can increase productivity by 0.87% while increasing public funding can lead to a decrease of 0.22%.

Ukraine has the smallest share of the state in health expenditures (about 48% in 2018) and the highest percentage of households (49% of total health expenditures and 96% in the structure of private spending). In the structure of educational expenditures, more than 80% are state expenditures (about 70% of them are at the expense of local budgets). The share of households in the structure of private spending on education is on average equal to 94%. At the same time, there is a direct statistically significant relationship between the productivity of human resources and public and household expenditures of health, namely: an increase in public spending by 1% causes an increase in labor productivity by 0.57%, and in the case of households there will be an increase by 0.28% accordingly. We have not revealed any statistically significant relationships between human resources productivity and educational expenditure by the types of sources.

The study shows that it is advisable to shift the priorities in the existing partnership models for further human resources productivity increase. In particular, for the United States — in the direction of increasing state participation in health care, in Sweden — reducing the involvement of households, in Germany and the United Kingdom — reducing business participation in national health systems, in Ukraine providing business access to education and health care and reducing the involvement of households in the financing of health care programs.

Conclusions. Therefore, according to the evaluation of the partnership models of entities in ensuring the growth of human resources productivity, the study proved that the state's participation in this process is crucial. At the same time, the expansion of household participation does not provide the desired outcomes and often has a disincentive effect. Participation of business in the healthcare system is justified only in Sweden, whereas in the United States it works for the education system.

It should be noted that these two countries have the highest human resources productivity. Hence, based on these data, we can assume that significant business participation in expenditure on education and healthcare systems facilitates the economic policy implemented in these systems to be

more efficient. The mechanisms of the links between business and productivity are causal. Kazakova [31] substantiates that the imperfection of the institutions designed to protect property rights, which is a definite peculiarity of Ukraine, hinders business development and, to an even greater extent, innovation business development. The country's low ratings on the global International Property Right Index, Index of Economic Freedom, Political Rights Index, Civil Liberties Index, high level of corruption according to the Corruption Perceptions Index, low level of the economic competitiveness according to the Global Competitiveness Index, and human resources productivity evidently confirm this statement. The absence of effective mechanisms to protect property rights does not facilitate economic reproduction on its own; moreover, it raises barriers to the entry of international capital and innovations into the national economy. The elements above create a «vicious circle» i.e., there are not enough resources for development, which would «entail» further development.

Consecutively, economic institutions and policy reflect national policy, as well as the inclusiveness of its institutions. Acemoglu [32] proved that while economic institutions are critical for determining whether a country is poor or prosperous, politics and political institutions determine what economic institutions a country has. Therefore, the effectiveness (efficiency) of human resource productivity models is determined not only by the share of state and business in funding the reproduction of human capital, but primarily by their partnership in developing an inclusive environment for business, economy and human resources, which we can surely see in developed countries. In the future, Ukraine can catch up with the countries that have the highest human productivity rankings only in case of development and operation of strong economic and political institutions and an effective partnership between the state, business, and households.

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