

Several Important Aspects that Affect the Gross Domestic Product of Various Countries in the Continent of Europe

Azhar Maksum^{1*}, Iskandar Muda², Luigi Pio Leonardo Cavaliere³, Marhayanie⁴, Ibnu Austrindanney Sina Azhar⁵, Melisa Angela Sinaga⁶

¹Department of Accounting, Faculty Economy and Business, Universitas Sumatera Utara, Medan/Indonesia

²Department of Accounting, Faculty Economy and Business, Universitas Sumatera Utara, Medan/Indonesia

³Department of Economics, University of Foggia, Foggia/Italy.

^{*3}Corresponding

⁴ Department of Management, Faculty Economy and Business, Universitas Sumatera Utara, Medan/Indonesia

⁵ Department of Accounting, Faculty Economy and Business, Universitas Sumatera Utara, Medan/Indonesia

⁶ Department of Accounting, Faculty Economy and Business, Universitas Sumatera Utara, Medan/Indonesia

Abstract

This study examines the effect of income, education and health on the gross domestic product found in several countries in the European continent. The study was conducted in 32 countries where data collection was carried out by combining secondary data from European databases. This study aims to analyze and prove that there is an effect of income, education and health levels on gross domestic product. To analyze and prove the hypothesis, empirical testing is carried out with Smart PLS 3.0. The method used is to analyze three years of data, from 2014 to 2016. In this study, national income, education quality, and health care expenditure are placed in independent variables which are denoted as x1, x2, and x3 then for gross domestic product (GDP) are placed in the variable dependent which is denoted by y. The results showed that all independent variables had an effect on the dependent variable.

Keywords: National Income Rate, Education Quality, Health Care Expenditure, Gross Domestic Product.

1. Introduction

Economic development refers to increases in the standard of living of a nation's population associated with sustained growth from a simple, low-income economy to a modern, high-income economy (Atmawikarta, 2009). Its scope includes the process and policies by which a nation improves the economic, political, and social well-being of its people. (Majewska et al., 2022). Development is a multidimensional process involving various fundamental changes in social structures, social behavior, and social institutions, in addition to accelerating economic growth, reducing income inequality, and eradicating poverty (Khan et al, 2022). So the purpose of development itself is to improve the welfare of the community so that increased

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economic growth and an even distribution of income are needed. Economic growth and economic equality are two development goals that should be achieved simultaneously in the process of economic development. The benchmarks for the success of development can be seen from the economic growth, economic structure, and the smaller income inequality between the population, between regions and between sectors (Santoso et al., 2020).

Gross Domestic Product (GDP) is a macroeconomic indicator which also affects bank profitability. If GDP increases, then the increase will be followed people's income the ability to save (saving) also increased. This savings increase will be affect bank profitability sharia (Zahariev et al, 2022). In the latest Regional Economic Outlook report, the IMF stated that real GDP across Europe will moderate to 1.4%, down from 2.3% in 2018, before rebounding to 1.8% in 2020. Meanwhile, Eurozone GDP grew 0.2 % on a quarter-on-quarter basis (QoQ) in the three months to end of September, the same growth as the previous period (Di Bella et al., 2022). When compared to the same quarter in 2018, Eurozone growth was 1.1%. This is the weakest annual growth rate since the fourth quarter of 2013. Earlier in March, the European Central Bank lowered its 2019 GDP growth forecast to 1.1% from 1.7%. In the continent's most developed economies, growth is expected to be lower, rising from 1.3% in 2019 to 1.5% in 2020, as global demand is also expected to pick up, although the IMF says prospects for recovery are deep. global trade is not as strong as it was six months ago. The IMF also said that the obstacles that caused a slowdown in Europe's manufacturing and trade sectors were likely to continue. The biggest challenge for the economy in Europe is the policies of the US government under Donald Trump, which launched a trade war against China and Britain's exit from the European Union (Brexit).

2. Literature Review

2.1. National Income

National Income is the sum of all income received by people in a country for one year (Muda et al., 2018 and Langdana, 2022). National income becomes the benchmark used for take into account a country's economy to get an idea about the economy that has been achieved and the value of the resulting expenditure. National income data that has been obtained can be used to make it forecasts about the country's future economy. This estimate can be used for someone looking to do business planning future economic activities, and for formulating economic planning for realizing future development which will come. Factors affecting national income are: (Li et al; 2022 and Milanovic, 2022)

1. Aggregate supply and demand

Aggregate demand is a list of all goods and services to be purchased by economic sectors at various levels price. Aggregate supply demand shows between relationships overall demand for goods and services according to level price.

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2. Consumption and Savings

Consumption is the total expenditure to obtain goods and services in an economy within a period of one year, meanwhile savings are the portion of income that is not spent on consumption.

3. Investation

Investments consisting of Direct investments, Portfolio investments, Financial derivatives and Other investments are all costs that are used create a new model. The aim of investment is to replace the damaged part of capital and increase the provision of existing capital.

2.2. Education

Education is the learning of knowledge, skills, and habits of a group of people that are passed down from one generation to the next through teaching, training or research. Education often takes place under the guidance of others, but is also possible on a self-taught basis. Education is generally divided into stages such as preschool, elementary school, junior high school, high school, and then college, university or apprenticeship. Tien et al (2022) states that education is a business conscious done by adults (educators) to immature people (students) to gain maturity, both physical, spiritual and social maturity. Education usually starts when a baby is born and lasts a lifetime. Education can begin before the baby is born as many people do by playing music and reading to unborn babies in the hope that he can teach their babies before birth.

Basically, the teaching and learning process (PBM) consists of three components, namely teachers (lecturers, teachers, instructors, and tutors), students (who are learning) and teaching materials provided by the teacher. Learning outcomes achieved by students are influenced by two main factors, namely factors from within the students themselves and factors originating from outside the students or environmental factors (Okon et al, 2022). A success in education cannot be separated from the learning process at school, therefore the school is one of the dominant providers of education in all educational organizations in addition to families and communities. Learning in schools always occurs interaction or reciprocal relationship between teachers and learners in educational situations or the process of teaching and learning activities. de Muijnck (2022) states that teaching is trying to create situations that allow the learning process to take place. Organized activities that aim to help and excite student learning.

2.3. Health Care Expenditure

At the micro level, namely at the individual and family level, health is the basis for work productivity and the capacity to learn at school. A workforce that is physically and mentally healthy will be more energetic and strong, more productive, and get a high income (Astell-Burt et al., 2022). This situation is especially true in developing countries, where the largest proportion of the workforce is still working manually. At the macro level, a population with a good health level is an important input for reducing poverty, economic growth and long-term economic development. Several great historical experiences have proven the success of an economic

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take-off, such as rapid economic growth supported by important breakthroughs in public health, disease eradication and nutrition improvement.

Large increases in costs for essential health interventions will lead to a significant reduction in the burden of disease in developing countries. The best estimate of the impact of health care is a reduction in total mortality in developing countries from infectious diseases and low maternal health by around 8 million per year in 2015, which is associated with a decline of about 330 million. If there is an increase in health status, namely an increase in life expectancy in low-income countries by 0.5 years for 19 years, say from 59 years to 68 years, then the effect on economic growth can reach around 0.5% per year.

2.4. Gross Domestic Product (GDP)

Product/GDP is the total market value of the final goods and services produced by resources that are in a country for a certain period, usually one year. Gross Domestic Product can also be used to study the economy over time. In economics, the final users of goods and services are divided into three main groups: households, businesses, and the government (Zang et al., 2022). One way gross domestic product (GDP) is calculated—known as the expenditure approach—is by adding the expenditures made by those three groups of users. Accordingly, GDP is defined by the following formula: $GDP = \text{Consumption} + \text{Investment} + \text{Government Spending} + \text{Net Exports}$ or more succinctly as $GDP = C + I + G + NX$ where consumption (C) represents private-consumption expenditures by households and nonprofit organizations, investment (I) refers to business expenditures by businesses and home purchases by households, government spending (G) denotes expenditures on goods and services by the government, and net exports (NX) represents a nation's exports minus its imports.

3. Method

Analysis data methods is used in this paper. Using SmartPLS version 3.0 software. Running on the Computer Desktop as the Media. Secondary data on the National Income Rate, Education Quality, Health Care Expenditure, European Gross Domestic Product for 2014 to 2016 are sourced from the European Statistical Recovery Dashboard. Measurement models are used to test validity and reliability, while structural models are used to test causality (hypothesis testing with predictive models).

4. Result and Discussion

4.1. Result

4.1.1 Data Descriptive

The descriptions of statistical data in this study are shown in Table 1.

Table 1. Data Descriptive

Missing	Mean	Median	Min	Max	Standart Deviation	Excess	Kurtosis	Skewness
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X1	0.000	14945.865	15790	0.000	43775	8576.538	0.056	0.409	0.000
X2	0.000	10.291	9.500	2.800	38.300	5.115	7.093	1.932	0.000
X3	0.000	55.473	61.200	0.000	73.600	19.843	3.895	-2.299	0.000
Y	0.000	19158.829	20100	9210	31340	5074.479	-0.582	0.077	0.000

Source: Result of Smart PLS (2022)

On the Table 1 above, we can see that the average value for the level of National Income Rate is 14945.865, lowest value is 0.000 and the highest value is 43775. In Education Quality the average value is 10.291, lowest value is 2.800, and the highest value is 38.300. In Health Care Expenditure the average value is 55.473, the lowest value is 0.000 and the highest value is 73.600. While in GDP the average value is 19158.829, the lowest value is 9210 and the highest value is 31340. *t*- Statistics value on the table path coefficients is in the follow figure 1 bellow :

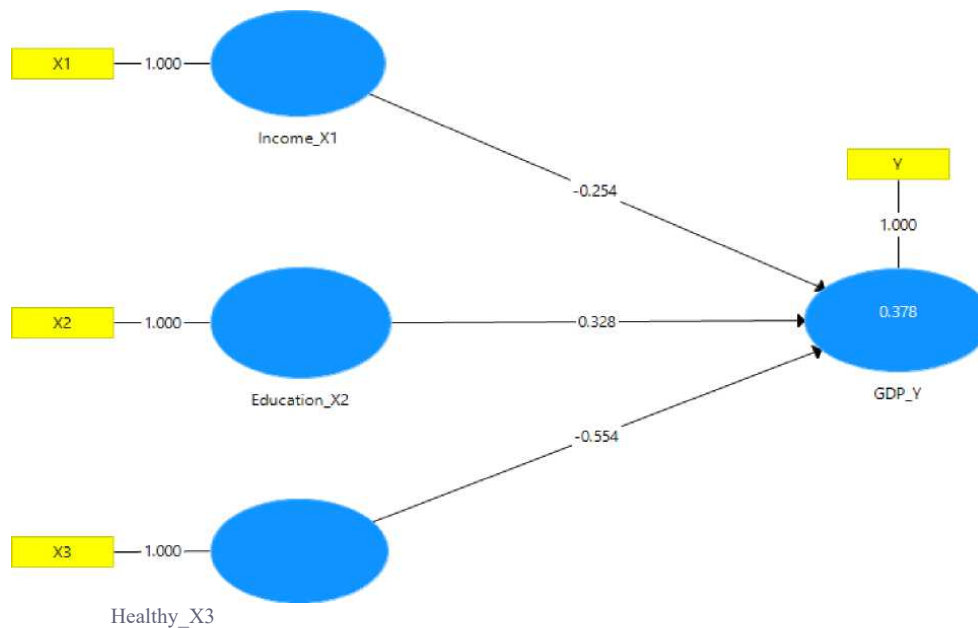


Figure 1. Overall model with coefficients

Based on the model in the Figure above, it can be seen that National Income Rate affects GDP with -0.254, which means that every unit increase in Income National Rate, GDP will decrease 0.254. Education quality affects GDP with 0.328, it means that each increase in the participation of one unit of education, GDP will increase by 0.328. While Healthy Care Expenditure affects GDP with -0.554, which means that every unit increase in Healthy Care, GDP will decrease 0.554. The statistical results of this study can be seen in Table 2 below:

Table 2. Path Coefficient

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	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics	P Values
Education_X2 -> GDP_Y	0.328	0.333	0.071	4.649	0.000
Healthy_X3 -> GDP_Y	-0.554	-0.553	0.083	6.662	0.000
Income_X1 -> GDP_Y	-0.254	-0.244	0.074	3.421	0.001

Source: Result of Smart PLS (2022).

Based on the result that showed in the Table 2, it can be seen as the National Income Rate (X1) as an independent variable has a negative and significant effect on the GDP. This can be proven by looking at the t statistical value (t test) of $3.421 > 1.973$ (t table) and the original sample value of -0.254 with a significance (P Values) $0.001 < 0.05$, which means that the independent variable Income National Rate has a significant negative effect on Gross Domestic Product. Education (X2) as the independent variable has a positive and significant effect on the formation of Gross Domestic Product (GDP). This can be proven by looking at the t statistical value of $4.649 > 1.973$ (t table) and the original sample value of 0.328 with a significance (P values) of $0.001 < 0.05$, which means the independent variable Education Quality (X2) has a positive and significant effect on Gross Domestic Product. And Health Care Expenditure (X3) as the independent variable has a negative and significant effect on the formation of Gross Domestic Product (GDP). This can be proven by looking at the t statistical value of $6.662 > 1.973$ (t table) and the original sample value of -0.554 with a significance (P Values) $0.001 < 0.05$, which means that the independent variable Health Care (X3) has a negative and significant effect on the GDP.

4.1.2 Predictive Relevance

The results of the Predictive Value hypothesis are shown in Table 3 below: Table 3: Predictive Relevance (Inner VIF Values)

	Education Quality_X2	GDP_Y	Health Care Expenditure_X3_	National Income Rate_X1_
Education_X2		1.015		
GDP_Y				
Healthy_X3_		1.275		
Income_X1_		1.268		

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Source: Result Smart PLS (2022).

Based on Table 3, it can be seen that there is a direct relationship between the National Income Rate, Education Quality, and Health Care Expenditure as independent variables on GDP as the dependent variable. It can be seen that the VIF value of each independent variable is <5.00 . Thus there is no collinearity problem for all variables.

4.1.3 Determination Coefficient Test Results

Adjusted R² is shown in Table 4 below:

Table 4: The coefficient of determination

	R Square	R Square Adjusted
GDP_Y	0.378	0.361

Source: Smart PLS Output (2022)

The results of testing the coefficient of determination in Table 4, the value of R Square is 0.378 and the value of Adjusted R Square is 0.61. Thus, the value of R Square illustrates that the ability of all independent variables, namely the National Income Rate (X1), Education Quality (X2), and Health Care Expenditure (X3) in this study can explain GDP (Y) as the dependent variable of 75,6% (moderate). While the remaining 37,8% is influenced by other variables outside this equation or the variables studied.

4.2. . Discussion

Based on the results of the data analysis that has been done, it is found that the three independent variables, namely the National Income Rate, Education Quality, and Health Care Expenditure have a significant influence on the formation of GDP in Europe. Based on the results of the analysis using the T test that t count is greater than t table so that it can be proven that the unemployment rate variable has a significant effect on GDP in Europe, with a significant $0.001 < 0.05$. This is because the Income National Rate has an impact on the GDP level. As stated in the literature review, national income is the national income is a measuring tool to find the level of a country's economy. GDP and national income are closely related. This is indicated by the components that exist in national income, namely demand and supply and investment which greatly affects GDP because the high and low value of the two components will make the GDP value stronger or decrease.

Based on the results of the analysis using the T test that t count is greater than t table so that it can be proven that the variable Education Quality has a significant effect on GDP in Europe, with a significant $0.001 < 0.05$. This is because Education has an impact on the GDP level. The higher the

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quality of education, quality human resources will be created so that it can increase the amount of

GDP the country receives. Vice versa, if the quality of education is getting lower, the human resources produced will also be of low quality and can make the GDP obtained decrease. Based on the results of the analysis using the T test that t count is greater than t table so that it can be proven that the variable Health Care Expenditure has a significant effect on GDP in Europe, with a significant $0.001 < 0.05$. This is because Health Care Expenditure has an impact on the GDP level. Several reasons for the increasing burden of disease among the poor are: First, the poor are more susceptible to disease due to limited access to clean water and sanitation and adequate nutrition. Second, the poor tend to be reluctant to seek treatment even though they are in dire need because there are large gaps with health workers, limited resources to meet basic needs, and limited knowledge to deal with disease attacks. The economic consequences of a disease attack on family members are catastrophic if the cost of healing requires selling assets they own or owe. This will cause the family to fall into poverty, and if it cannot get out of this, it will disturb the welfare level of all family members and even the next generation.

5. Conclusion

Based on the results of the analysis and testing of the research data above, the following conclusions can be obtained:

1. The income rate has a negative and significant effect on GDP. It means, while the National Income Rate increase so the GDP will decrease or when the Income Rate decrease the GDP will increase.
2. Education has a positive and significant effect on GDP. This shows that the comparison between these two things is directly proportional where if the quality of education is improved, GDP will also increase. When education decreases, GDP also decreases.
3. Health Care ratio has a negative and significant effect on GDP. When the HealthCare decrease, the GDP will increase. When the Health Care increase the GDP will decrease.

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