

International Health Financing and Revenues

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Abstract. The objective of this study is empirically testing the effect of healthcare financing on international governmental revenue. The samples used were 202 countries around the world upon a decade observation period. A significant positive effect between health expenditure and government revenue was found. This result is important to confirm the International Health Regulations (IHR) model to be applied all over the world. The implication of this research is developing the theory of regulation in global economics through International Health Regulations (IHR).

Keywords: Global Regulation Theory, International Health Regulations (IHR), healthcare expenditure, governmental revenue.

1 Introduction

The Covid-19 pandemic has caused a far-reaching impact on international economics. Lockdowns and travel bans have caused a drop in demand for products and services in various industries. The COVID-19 pandemic created awareness about the close link between health conditions and global economic growth. Previous researches indicate that healthcare expenditure links with economic growth.[1]–[6] However, previous research used samples with different contexts so that the results of their research only partially described conditions in certain areas.

Differences in empirical results in various countries indicate that there is a need for international regulation that can encourage increased international economic growth through the health sector in each country. International Health Regulations (IHR) are international legal instruments which binds in 196 countries. An epidemic on Europe is the reason of IHR's growth. [7]. This motivates researchers to conduct a research covering the worldwide health sector.

This research generally aims to develop science, technology, social and culture by developing the theory of International Health Regulations (IHR). The specific aim of this research is to provide empirical evidence about the influence of healthcare expenditure on international economic growth.

This research focuses on healthcare expenditure and economic growth around the world. International Health Regulations (IHR) covers a subset of countries around the world. Thus, economic growth has not been evenly distributed internationally. Therefore, this research is important to develop a model of International Health Regulations (IHR) to be applied in all countries in the world for the international economic growth.

2 Literature Review

2.1 Unified Growth Theory

According to Unified Growth Theory [8] human resources are a central element in economic growth. For most of human existence, technological advances have been matched by population growth. However, the interaction between technology and the size and population increases the importance of education to adapt to a changing technological environment [10]. This theory was developed in order to capture major empirical regularities in growth processes and their contribution to important increases in inequality across countries [8]. Evolutionary forces have played an important role in the evolution of the world economy from stagnation to growth [11]. Better technology results in better levels of income and human resources, as well as gradual proliferation in this regard can contribute to a process of sustainable growth.

2.2 International Health Regulations (IHR)

The International Health Regulations (IHR) provide an overarching legal framework that defines the rights and obligations of states in dealing with health events and emergencies that occur in the community. The regulation contours the criteria for international health attentions IHR requires countries to build and maintain core capacities in the oversight. International regulations for travel and transport such as medical documents and implementation of health measures under the regulation. Implementing IHR is important at the national level. WHO plays an important role on IHR and helps the capacity internationally. Limiting the spread of disease and health risks internationally and preventing unjustified travel and restricted trades are the main goals. WHO supports countries to maintain the health capacity and to detect and verify the health risks [7].

2.3 Public Interest Theory

Public Interest Theory was first developed by A. C. Pigou, M.A. on 1933 in his book entitled *The Economics of Welfare*. In the context of the economy in England, welfare in an economy must be regulated in regulations that prioritize the public interest [12]. Public Interest Theory has been used extensively in testing the economic context in various countries. Public Interest Theory was tested in the context of the Swedish electricity market [13] and a comparison of Public Interest Theory in the context of Denmark, the Netherlands, Norway and Sweden has been conducted [14].

Previous studies examining healthcare expenditure and economic growth have shown mixed results. It has been shown that country's health sector spending is positively related to economic performance in the United States [2] and healthcare expenditure has a significant influence on the economic growth of developing countries [3]. A research was conducted about the dynamic relationship between CO2 emissions, healthcare expenditure, and economic growth in Pakistan. The study shows the results that the country's health sector spending is positively related to economic growth in Pakistan [4]. Public health expenditure in Nigeria has a negative effect on economic growth but a 1% increase in life expectancy increases economic growth by 3.85% and a 1% increase in mortality reduces economic growth by 1.84% [1]. The effect of renewable energy, public health expenditure, logistics, and environmental

performance on sustainable economic growth in countries that are members of the Association of Southeast Asian Nations was examined and shows that higher state health sector spending has a negative impact on economic activity due to inefficiency [5]. A research conducted about the causal relationship between health expenditure and economic growth in E7 countries shows that there is no causal relationship between the country's health sector spending and economic growth [6].

2.4 Economic Growth, Revenue and Expenditure

Economic growth is an increase of goods and services in a period of time compared with a previous period. Gross National Product (GNP) or Gross Domestic Product (GDP) are used to measure aggregate economic growth. Total revenue refers to the sum of individual income taxes, business income taxes and other tax revenues a government collects over a given period of time [15]. There is a significant relationship between revenue and GDP [16]. Total revenue tends to grow as GDP grows and decrease on economic downturn. The overall size of government stay same as a proportion of economic activity when there is an increase in government expenditure at about the same rate as economic growth and the total revenue per GDP ratio remains constant. However, if expenditure growth outpaces increases in total revenues, the government debt will eventually increased and the government may raise taxes or cut some expenditure [15].

The causality of public expenditure and revenue runs in Nigeria. The study revealed that expenditure and revenue are significantly integrated and move on a common trend as long as temporal budget constraint is binding over the long run [17]

3 Method and Data Analysis

The population of this research is all countries in the world. The sample of this research consists of 202 countries on the most recent decade observation period. The data source comes from the International Monetary Fund (IMF) database. This study uses an Ordinary Least Square (OLS) analysis tool. This method is used to minimize the number of squared residuals in linear regression.

4 Research Result and Discussion

Figure 1 shows the data of international revenues on a decade. Countries with the highest economic growth are on Europe and Central Asia while the lowest revenues are on South Asia.

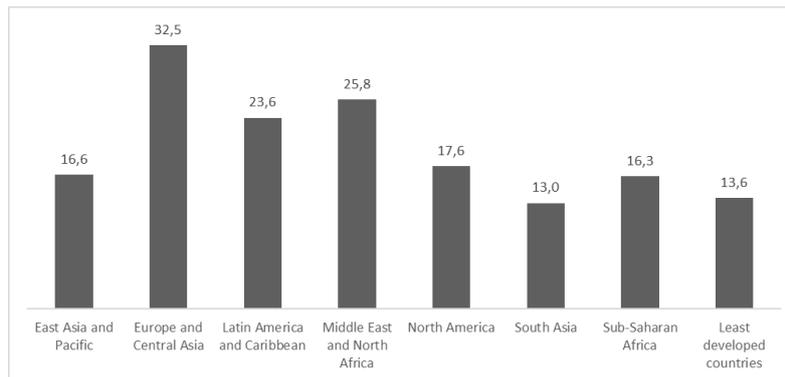


Fig. 1. International revenues on a decade.

Source: Data Proceed, 2023.

The economic growth of Europe and Central Asia is characterized by a blend of developed, emerging, and frontier markets and a strategic location, rich history, and cultural heritage which makes them a good place for global economic activity. Europe and Central Asia is home to a wide range of economic activities that creates a great opportunity for trade and investment.

Countries in Europe have strong institutions that support economic growth and stability. Europe is also known for its strong focus on innovation and technology. Many European countries have a robust infrastructure for research and development, which drives technological advancement and contributes to economic growth. Central Asia is rich in natural resources like oil, gas, and minerals. These resources play a crucial role in the economies of countries like Kazakhstan, Uzbekistan, and Turkmenistan. The strategic location of the region adds to its economic strength for trade networks and connectivity with other major global countries. Europe and Central Asia have a well-educated workforce. The region's strong emphasis on education has resulted in a high level of human capital, which is a key driver of economic growth.

South Asia has faced some significant challenge on economic progress. South Asian economies are dependent on agriculture which are vulnerable to climate change and natural disasters. Rapid population growth leads to issues such as unemployment, poverty and inadequate public services. Countries in South Asia has also face some challenges in health and education.

Figure 2 shows the data of international health expenditure on a decade. Countries with the highest health expenditure are on North America and the lowest health expenditure are on South Asia.

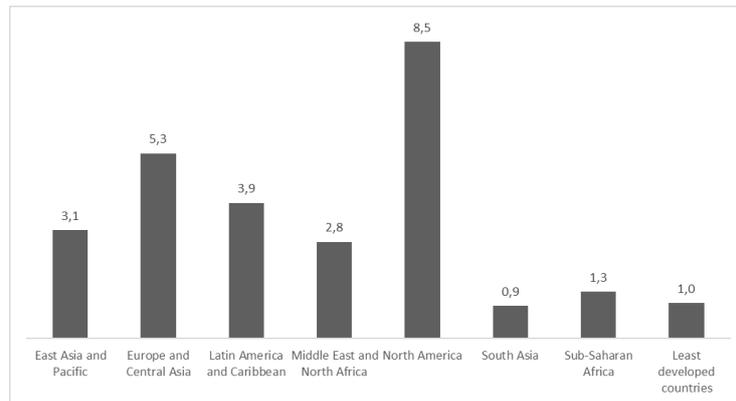


Fig. 2. International Health Expenditure on a decade.
Source: Data Proceed, 2023.

Health expenditure on North America goes to reserarch, development, medical innovation and public health programs which focuses on promoting health behaviour and improving the overall health while South Asia faces some challenges despite the efforts being made to increase the healthcare expenditure. Limited resources, poverty and infrastructure development are among the challenges need to be faced in South Asia. Gaps to access the healthcare are also an issue that leads to difficult health resource allocation.

The testing for healthcare expenditure and revenue is based on Model 1. The results of regressions are shown in Table 1. Model 1 shows that the value β is 3.407 with p-value 0,063. It means that variable X has a positive influence on variable Y which is statistically significant.

Table 1. The Result

Model 1: $Y = \alpha + \beta X + \varepsilon$					
α (Sig.)	β (Sig.)	R^2	Adjusted R^2	F (Sig.)	N
4.461 (0.000)	3.407 (0.000)	0.235	0.231	61.414 (0.000)	202

Source: Data Proceed, 2023.

The result provide an empirical evidence that healthcare revenue has a positive influence on revenue. This result is consistent with Abdulrasheed (2017) which state that expenditure and revenue are significantly integrated. Health increases healthier workforce, productivity and improvement on the quality of life. This may lead to new creations and technologies from the human resource for a better government revenues.

5 Implication and Suggestion for Future Research

The results of this research give an insight about the implementation of healthcare expenditure and revenue. Healthcare expenditure have a positive impact on revenues. These results have an implication on the harmonisation of healthcare regulation around the world to face dynamics on international health and finance. It also have an implication on developing the governance framework on health sector. Future research could expand the observation on post-pandemic period.

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