

-RESEARCH ARTICLE-

## THE ROLE OF PUBLIC SPENDINGS, ECONOMIC CONDITIONS, AND DIGITALIZATION ON SOCIO-HUMAN DEVELOPMENT PERFORMANCE IN ASIA

**Danusvas Sagarik**

Graduate School of Public Administration,  
National Institute of Development Administration,  
Seir Thai Road, Bangkok, 10240 Bangkok, Thailand.  
Email: [danuvas.nida@gmail.com](mailto:danuvas.nida@gmail.com)

### —Abstract—

Recently, human development has become the most critical factor for societies worldwide, and public expenditure, economic conditions, and digitalization can all contribute to its enhancement. This aspect requires the attention of researchers and regulators, and the current study investigates the impact of public spendings, such as government health and education expenditures, economic conditions, such as economic growth, inflation, and population growth, and digitalization on the socio-human development in the top ten Asian GDP-producing nations. From 2010 to 2021, the researcher extracted secondary data from secondary sources such as World Development Indicators (WDI). The researchers also used the continuously updated, fully modified (CUP-FM), and continuously updated bias-corrected (CUP-BC) models to examine the relationship between the constructs. The results revealed that public spending, such as government health and education expenditures, and economic conditions, such as economic growth, inflation, population growth, and digitalization, have positive links with socio-human development in Asia's top ten GDP-producing nations. The outcomes provide regulators with guidelines for devising regulations for achieving socio-human development by increasing public spending, enhancing economic conditions, and embracing digitalization.

**Keywords:** Public spending, government health, and educational expenditures, economic conditions, inflation, population growth, digitalization, socio-human development

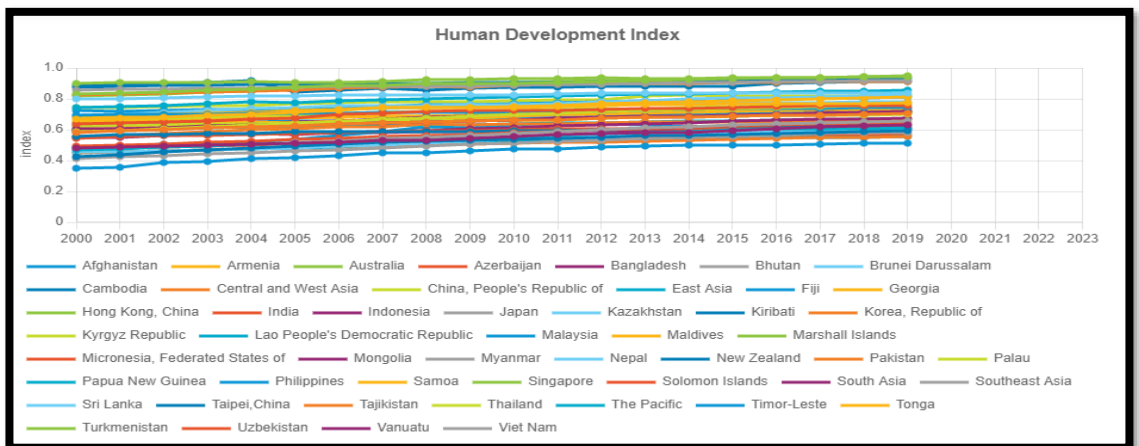
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## INTRODUCTION

Public spending is when the government spends money to distribute income and provide products and services. Past political decisions may determine the manner and focus of expenditure and are highly sensitive to economic conditions. However, it should be noted that public expenditure does not necessarily indicate government efficiency or productivity (Andonova & Trenovski, 2023). Public spending has evolved, from focusing on maintaining order and a limited infrastructure before World War I, to public education, public projects such as railroads, power plants, waterworks, and expansion. The more extensive a country's economy or, the more evolved it is, the greater its ability to fund public expenditures (Yu et al., 2015). However, a new and rapidly transforming obstacle comes with the ongoing development of technologies. It is no longer only a question of how much but also of how well and what should be the focus of public expenditure. As the demand for services increases and the budget constricts, the government is expected to do more with less. This, coupled with the rise of digitalization, prompted the government to reconsider its approach to public engagement, policymaking, and service delivery. Digitalization is currently being incorporated into the determinant of life equality to increase access to information and communication technologies (Osipova & Naumova, 2020). Despite this, digitalization is accompanied by several adverse effects, such as the disruption of the traditional economy, unemployment, wage inequality, and well-being (Frey & Osborne, 2017). According to several studies, the effects are primarily determined by fundamental conditions such as socioeconomic factors and national policy (Kryzhanovskij et al., 2021).

In light of the circumstances mentioned above, the government must address the issue of well-being, particularly in light of the current state of the world. The emergence of covid-19 and the increased expectations for the government to provide services and welfare while also developing its human capital are of the utmost importance. This paper endeavors to answer, from both a theoretical and practical standpoint, the impact of public spending in conjunction with economic growth, inflation, population growth, and the digitalization of government on achieving development outcomes. The Human Development Index (HDI) was created to measure the degree of progress in human development, which is central to all government functions and policies. In addition to the HDI, this study also employs the Social Progress Index (SPI), which extends the HDI's measurement. Governments rely heavily on public expenditures and, more recently, digitalization to promote human development. The effect of both on human development has been explored extensively in numerous scholarly works. However, as stated previously, governments around the globe are experiencing a rise in the scope of services expected of them, despite budgetary constraints. Thus, the most important issue to investigate is 'what' the government should spend money on to improve human development.

Several notable studies have investigated the relationship between expenditure and digitalization. However, no studies have examined the impact of its spending and digitalization on human development. Haque and Khan (2019) investigate the relationship between public expenditure on digitalization and a nation's readiness for digitalization, as well as the effect of this relationship. Dobrolyubova et al. (2019) investigate the impact of e-government factors on economic, social, and environmental development that is sustainable. The study described both the positive and negative effects of e-government on business measures. However, these studies do not identify the area where government spending should be prioritized or the relative impact of spending on human development. The study provides an up-to-date analysis because it focuses solely on Asian nations. The evidence uncovered functions as a policy recommendation for policymakers to achieve the desired development outcomes. In addition, it is necessary to identify issues and challenges related to expenditure, economic growth, inflation, population, and digitalization, as well as incorporate institutional factors into the monitoring system, which allows countries to identify their strengths and weaknesses. The data presented in this study serve as a starting point for devising policy and action plans to promote development performance in Asian nations. Figure 1 depicts the human development index of Asian economies.



**Figure 1:** Human Development Index of Asian Economies

There is a great deal of literature on the socio-human development performance in Asian economies; however, the present investigation seeks to fill a number of gaps in the literature. These gaps are as follows: 1) even though socio-human development performance has been studied extensively from different perspectives and at different times in different economies, it has not yet reached its peak, as numerous of its aspects, particularly in the context of government health expenditure, has not yet reached their optimum. 3) Wijaya et al. (2021) and Amarasinghe et al. (2020) investigated whether there is a link between human development and economic growth; however, the current

study will also investigate this issue, along with other variables such as government health expenditures, government education expenditures, inflation, population growth, and digitalization in Asian economies using a new sample set. 4) [Bechtel \(2022\)](#) examined whether or not there is a connection between human development and inflation. Using a new sample set, the current study will also investigate this issue, along with other variables such as government health expenditures, government education expenditures, economic growth, population growth, and digitalization. 5) [Zaborovskaia et al. \(2020\)](#) and [Habibi and Zabardast \(2020\)](#) investigated whether there is a connection between human development and digitalization; however, the current study will also examine this issue in conjunction with other variables such as government health expenditures, government education expenditures, economic growth, population growth, and inflation with a new sample set. 6) [Dominguez-Bello et al. \(2019\)](#) and [Yumashev et al. \(2020\)](#) investigated whether there is a connection between human development and population growth; however, the current study will also examine this issue alongside other variables such as government health expenditures, government education expenditures, economic growth, digitalization, and inflation with a new sample set. 7) [Haque and Khan \(2019\)](#) and [Omodero \(2019\)](#) investigated whether or not there is a relationship between human development and education expenditures. Using a new sample set, the current study will also examine this relationship, along with other variables such as government health expenditures, population growth, economic growth, digitalization, and inflation. 8) [Akbar et al. \(2021\)](#) investigated whether human development and health expenditures are connected.

However, using a new sample set, the current study will also consider it alongside other variables such as government education expenditures, economic development, digitalization, inflation, and population growth. The significance of the current study includes 1) socio-human development being one of the most important topics of the modern era, the current study will emphasize the need to investigate it, particularly in the context of Asian economies, 2) Although there is a great deal of literature on socio-human development, the present study will add to the literature on the subject in the context of Asian economies; 3) It will provide a guideline and assistance to socio-human development professionals to review and upgrade their policies to provide more logical solutions for the improvement of socio-human development in Asia.

## LITERATURE REVIEW

Healthcare is one area where public expenditure can have a substantial impact on socio-human development. Increased public expenditure on healthcare can result in better health outcomes, lower mortality rates, and longer life spans. In addition, social welfare programs such as unemployment benefits, social security, and housing assistance can substantially affect socio-human development by reducing poverty and enhancing the well-being of individuals and families. In this context, [Akbar et al. \(2021\)](#) examined

whether healthcare expenditures and socio-human development are related. The research was conducted on 33 OECD economies. The investigation was empirical. The study sampled information from the previous decade. The specified sample spans the years 2006 through 2016. For analysis, the investigation employed the PVA method. According to the analysis's findings, healthcare expenditures and human development have a distinct and significant relationship.

Similarly, [Azam et al. \(2019\)](#) investigated the possibility of a connection between health expenditures and human development via economic development. The research was performed in China. The investigation was empirical. The survey sampled information from 21 years. The specified sample spans the years 1995 through 2016. The CCR analysis method was employed for analysis in this study. According to the analysis results, there is a distinct and substantial relationship between health expenditures and human development in the form of economic prosperity. The study also recommended devoting special attention to improving their population's health through formulating and implementing effective policies. With the aid of the human development index, a country's human condition and social development are evaluated. Variation in such an index indicates the country's socio-human development performance. In this context, [Rahimi et al. \(2022\)](#) examined whether or not healthcare expenditures and socio-human development are connected. The study focused on the populations of 187 economies around the globe. The investigation was empirical. The survey sampled information from 13 years. The specified sample spans the years 2005 through 2018. The study employed panel data regression analysis for analysis. According to the analysis results, healthcare expenditures and socio-human development have a distinct and significant relationship.

Public expenditure is essential for socio-human development because it allows governments to invest in various programs and services that can enhance the well-being of individuals and communities. Education is one of the main areas where public spending substantially impacts socio-human development. In this context, [Matekenya et al. \(2021\)](#) examined whether a connection exists between education expenditures made possible through financial inclusion and socio-human development. The population of Sub-Saharan economies was the focus of this study. The investigation was empirical. The survey sampled information from 13 years. The specified sample spans the years 2004 through 2017. The study employed panel data regression analysis for analysis. According to the analysis results, a distinct and substantial relationship exists between education expenditures in financial inclusion and socio-human development.

Similarly, [Shafuda and De \(2020\)](#) examined the relationship between education expenditures in the form of government spending and socio-human development. The investigation was conducted on the Namibian populace. The investigation was empirical. The survey sampled information from 35 years. The specified sample spans the years 1980 through 2015. The study employed vector auto-regression analysis for analysis.

According to the analysis results, there is a clear and substantial relationship between education expenditures in the form of government expenditures and socio-human development. In addition, [Omodero \(2019\)](#) examined the possibility of a connection between general government expenditures (including education expenditures) and socio-human development. The investigation was conducted on the Nigerian populace. The investigation was empirical. As a sample, the research utilized data from 14 years. The specified sample spans the years 2003 through 2017. The study employed multiple linear regression analysis for purposes of analysis. According to the analysis results, a distinct and substantial relationship exists between general government spending (including education expenditures) and socio-human development.

Any nation's prosperity depends on its economic conditions. The socio-human development of any nation is enhanced by its economic development. The relationship between economic growth and socio-human development is significant. [Akisik et al. \(2020\)](#) examined the relationship between IFRS, foreign direct investment, economic growth, and socio-human development in this context. The population of Anglophone, Francophone, and African economies was examined in the study. The investigation was empirical. The study used 20 years of data as a sample. The selected sample spans the years 1997 to 2017. The study employed the ARDL analysis method for analysis. According to the analysis's findings, IFRS, foreign direct investment, economic growth, and socio-human development are linked in a plain and substantial manner. In addition, [Amarasinghe et al. \(2020\)](#) investigated the possibility of a connection between economic growth and socio-human development. The investigation was conducted on the Indian populace. The investigation was empirical.

As a sample, the research utilized data from 14 years. The specified sample spans the years 2001 through 2015. The study employed FE panel regression analysis for analysis. According to the analysis results, economic growth and socio-human development have a distinct and significant relationship. In addition, [Srivastava and Talwar \(2020\)](#) investigated the possibility of a relationship between FDI, economic growth, and socio-human development. The investigation was conducted on the populations of thirty diverse economies. The investigation was empirical. The analysis sampled information from the past five years. The chosen sample spans the years 2012 to 2017. For purposes of analysis, the study utilized the DOLS analysis method. According to the analysis results, a distinct and significant relationship exists between FDI, economic growth, and socio-human development.

The population is regarded as one of the most critical determinants of a nation's prosperity. Literature suggests that population growth significantly impacts a country's socio-human development. In this context, [Yumashev et al. \(2020\)](#) examined whether a correlation exists between population growth and human and socio-human development. The study was conducted on the populations of a variety of global economies. The investigation was empirical. The study sampled information from the previous decade. The specified sample



spans the years 2007 through 2017. For analysis, the study employed the 3SLS method. According to the analysis's findings, a distinct and significant relationship exists between population growth and socio-human development.

Similarly, [Permanyer and Smits \(2020\)](#) examined socio-human development disparities. The global population of 161 economies served as the subject of the investigation. The investigation was empirical. According to the findings, inequality in human development is attributable to a variety of factors, one of which is population growth. Inadequate population growth leads to mismanagement of natural resources, which further contributes to inequality in human development as the rich become wealthier and the impoverished become poorer. To distribute resources equitably, the global population should be brought under control.

Improving a country's socio-human development is the responsibility of its economy. The economy depends on a variety of factors, such as inflation. These factors impact the public's day-to-day activities. There is a strong relationship between inflation and socio-human development. In this context, [Bechtel \(2022\)](#) investigated the possibility of a relationship between population growth, life expectancy, and socio-human development. The investigation was conducted on multiple American populations. The investigation was empirical. The survey sampled information from 26 years. The specified sample spans the years 1991 through 2017. The study employed Gaussian most minor square regression analysis for analysis. According to the analysis's findings, a distinct and substantial relationship exists between population growth, life expectancy, and socio-human development.

Similarly, [Matekenya et al. \(2021\)](#) examined the possibility of a relationship between Zakah, Infaq, population expansion, and socio-human development. The investigation was conducted on the Indonesian populace as a whole. The investigation was empirical. The study sampled information from the previous decade. The specified sample spans the years 2011 through 2021. The path analysis method was employed for analysis in this investigation. According to the results of the analysis, there is a distinct and substantial relationship between Zakah, Infaq, population growth, and socio-human development and socio-human development.

The concept of digitalization was investigated because it has become a significant factor in contemporary society. Digitalization is another essential factor influencing socio-human development, enabling individuals to access previously inaccessible information, services, and opportunities. Additionally, digitalization can result in increased economic development, new jobs, and enhanced governance. In this regard, [Zaborovskaia et al. \(2020\)](#) investigated the possibility of a connection between digitalization and socio-human development. Multiple populations of the Russian Federation were included in the investigation. The investigation was empirical. The analysis sampled information from the past four years. The specified sample spans the

years 2014 through 2018. For analysis, the study utilized OLS estimation analysis. According to the analysis results, there is a distinct and substantial connection between digitalization and socio-human development and socio-human development.

Similarly, [Habibi and Zabardast \(2020\)](#) investigated the possibility of a connection between digitalization and socio-human development within the context of economic development. Multiple Middle Eastern economies were included in the study's population sample. The investigation was empirical. The survey sampled information from 17 years. The specified sample spans the years 2011 through 2021. The path OLS fix effect analysis method was utilized for analysis. According to the analysis's findings, digitalization and socio-human development have a distinct and significant relationship.

## RESEARCH METHODS

This study examines the impact of government health and education expenditures, economic growth, inflation, population growth, and digitalization on socio-human development in the top ten Asian GDP-producing nations. The selected nations are China, India, Japan, Indonesia, Turkey, South Korea, Saudi Arabia, Thailand, Iran, and Pakistan. However, South Korean data is unavailable and omitted from the investigation. From 2010 to 2021, the researcher extracted secondary data from secondary sources such as WDI. The researchers formulated the research equation utilizing the understudy constructs listed below:

$$SHDP_{it} = \alpha_0 + \beta_1 GHE_{it} + \beta_2 GEE_{it} + \beta_3 EG_{it} + \beta_4 INF_{it} + \beta_5 PG_{it} + \beta_6 DG_{it} + e_t \quad (1)$$

Where;

SHDP = Socio-human Development Performance

$t$  = Time Period

GHE = Government Health Expenditures

GEE = Government Expenditures on Education

EG = Economic Growth

INF = Inflation

PG = Population Growth

DG = Digitalization

As proxies for the dependent variable human development index, the researchers used socio-human development as the dependent variable. In addition, the researchers used three predictors, including public spending proxies such as government health expenditures (percent of total health expenditures) and government expenditures on education (percent of GDP), economic conditions proxies such as GDP growth (annual percentage), consumer prices (annual percentage), and population growth (annual percentage), and digitalization proxies such as high technology exports (percent of manufactured exports). These proxy servers are listed in [Table 1](#).



**Table 1: Variables with Measurements**

| S# | Variables                           | Measurement   | Sources |
|----|-------------------------------------|---|---------|
| 01 | Socio-human Development Performance | Human Development Index   | WDI     |
| 02 | Public Spending                     | Government health expenditures (% of total health expenditures) | WDI     |
|    |                                     | Government expenditures on education (% of GDP)                 | WDI     |
| 03 | Economic Conditions                 | GDP growth (annual percentage)                                  | WDI     |
|    |                                     | Inflation, consumer prices (annual %)                           | WDI     |
|    |                                     | Population growth (annual percentage)                           | WDI     |
| 04 | Digitalization                      | High technology exports (% of manufactured exports)             | WDI     |

The researchers check the variables' details by exploring descriptive statistics. In addition, the researchers also check the correlation using a correlation matrix. Moreover, the researchers also check the cross-sectional dependence (CSD) using the BP-LM test introduced by Breusch & Pagan and the P-CD test introduced by Pesaran. The LM test equation is given below:

$$LM_2 = \sqrt{\frac{1}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T_{ij} \hat{\rho}_{ij}^2 - 1) \rightarrow N(0,1) \quad (2)$$

In contrast, the researchers also check the CSD using the CD test that is introduced by Pesaran given below:

$$CD = \sqrt{\frac{2}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N T_{ij} \hat{\rho}_{ij}^2 \rightarrow N(0,1) \quad (3)$$

Finally, the researchers also checked the CSD using the BP-LM test introduced by Breusch & Pagan is given below:

$$LM_1 = \sum_{i=1}^{N-1} \sum_{j=i+1}^N T_{ij} \hat{\rho}_{ij}^2 \rightarrow X^2 \frac{N(N-1)}{2} \quad (4)$$

Moreover, the researchers examine the unit root among the constructs using Augmented Dickey-Fuller (CADF) test, and the equation for the approach is mentioned below:

$$X_{it} = \alpha_i + b_i X_{it-1} + c_i \bar{X}_{it-1} + d_i \Delta \bar{X}_t + e_{it} \quad (5)$$

In addition, the researchers also examine the unit root using Cross-Sectionally Augmented IPS (CIPS). It is introduced by Pesaran (Sarkodie & Strezov, 2019). The equation for the approach is mentioned below:

$$\Delta W_{i,t} = \phi_i + \phi_i Z_{i,t-1} + \phi_i \bar{Z}_{t-1} + \sum_{l=0}^p \phi_{il} \Delta \bar{W}_{t-1} + \sum_{l=0}^p \phi_{il} \Delta W_{i,t-1} + \mu_{it} \quad (6)$$

In the above equation,  $\bar{W}$  Shows the average cross-section is given below:

$$W^{i,t} = \phi^1 \overline{GHE}^{i,t} + \phi^2 \overline{GEE}^{i,t} + \phi^3 \overline{EG}^{i,t} + \phi^4 \overline{INF}^{i,t} + \phi^5 \overline{PG}^{i,t} + \phi^6 \overline{DG}^{i,t} \quad (7)$$

So, the CIPS test equation is mentioned below:

$$\widehat{CIPS} = N^{-1} \sum_{i=1}^n CADF_i \quad (8)$$

In addition, the researchers also check the co-integration by applying the (Westerlund & Edgerton, 2008) approach. The equations for the approach are mentioned below:

$$LM_{\phi}(i) = T \hat{\phi}_i (\hat{\tau}_i / \hat{\sigma}_i) \quad (9)$$

$$LM_{\tau}(i) = \hat{\phi}_i / SE(\hat{\phi}_i) \quad (10)$$

In the above equations,  $\hat{\phi}_i$  shows the approximation against  $\hat{\sigma}_i$ , while  $\hat{\tau}_i$  shows the long-run assessed variance and  $\phi_i(L) = \mathbf{1} - \sum \phi_{ij} L^j$  shows a scalar polynomial, and  $\rho_i$  shows the factor loading parameters vector.

The researchers also utilized the CUP-FM and CUP-BC to examine the relationship between the constructs. This methodology was developed by Bai et al. (2009). It provides accurate evaluations and estimates the covariance matrix, factor loadings, and continuous parameters until convergence is achieved. The equation is as follows:

$$\beta_{cup} = \left[ \sum_{i=1}^N \left( \sum_{t=1}^T \hat{y}_{it} + \hat{\beta}_{cup} \right) (x_{it} - \bar{X}_i)' - T \left( \lambda'_i (\hat{\beta}_{CUP}) \hat{\Delta}_{F\epsilon i} (\hat{\beta}_{CUP}) + \hat{\Delta}_{u\epsilon i} (\hat{\beta}_{CUP}) \right) \right] \times \left[ \sum_{i=1}^N \sum_{t=1}^T (x_{it} - \bar{X}_i) (x_{it} - \bar{X}_i)' \right] \quad (11)$$

Where,  $\hat{\Delta}_{F\epsilon i}$  and  $\hat{\Delta}_{u\epsilon i}$  are one-sided estimated covariance.

## RESEARCH FINDINGS

The researchers examine the specifics of the variables using descriptive statistics. The results revealed that the mean values for SHDP were 102,659, GHE was 56,272, GEE was 4,080, and EG was 3,933. In addition, the results revealed that the average INF value was 6.585, the average PG value was 1.037, and the average DG value was 10.857. These results are listed in Table 2.

**Table 2: Descriptive Statistics**

| Variable | Obs | Mean    | Std. Dev. | Min    | Max     |
|----------|-----|---------|-----------|--------|---------|
| SHDP     | 108 | 102.659 | 10.548    | 84.510 | 151.820 |
| GHE      | 108 | 56.272  | 20.614    | 22.016 | 84.261  |
| GEE      | 108 | 4.080   | 1.834     | 2.136  | 11.475  |
| EG       | 108 | 3.933   | 3.620     | -6.596 | 11.353  |
| INF      | 108 | 6.585   | 8.141     | -2.093 | 43.389  |
| PG       | 108 | 1.037   | 0.734     | -0.460 | 3.206   |
| DG       | 108 | 10.857  | 10.495    | 0.544  | 32.124  |

In addition, the researchers use a correlation matrix to examine the correlation. The results revealed that public spending, such as government health and education expenditures, economic conditions, economic growth, inflation, population growth, and digitalization, positively links socio-human development in Asia's top ten GDP-producing nations. These results are listed in [Table 3](#).

**Table 3: Matrix of Correlations**

| Variables | SHDI  | GHE    | GEE    | EG     | INF    | PG     | DG    |
|-----------|-------|--------|--------|--------|--------|--------|-------|
| SHDP      | 1.000 |        |        |        |        |        |       |
| GHE       | 0.233 | 1.000  |        |        |        |        |       |
| GEE       | 0.494 | 0.280  | 1.000  |        |        |        |       |
| EG        | 0.106 | -0.197 | 0.047  | 1.000  |        |        |       |
| INF       | 0.282 | -0.274 | -0.135 | -0.097 | 1.000  |        |       |
| PG        | 0.132 | -0.396 | 0.455  | 0.162  | 0.258  | 1.000  |       |
| DG        | 0.158 | 0.280  | -0.267 | 0.103  | -0.467 | -0.697 | 1.000 |

In addition, the researchers examine CSD using the BP-LM test developed by Breusch & Pagan, the P-CD test developed by Pesaran, and the BP-LM test developed by Breusch & Pagan. The results indicated that there is no CSD issue. These results are listed in [Table 4](#).

**Table 4: CSD Test Results**

| Variables | Breusch-Pagan LM | Pesaran Scaled LM | Pesaran CD |
|-----------|------------------|-------------------|------------|
| SHDP      | 24.389***        | 4.382***          | 4.393***   |
| GHE       | 23.291***        | 3.478***          | 10.332***  |
| GEE       | 15.484***        | 5.493***          | 7.377***   |
| EG        | 22.765***        | 5.664***          | 6.876***   |
| INF       | 13.292***        | 4.490***          | 4.577***   |
| PG        | 14.474***        | 4.393***          | 5.474***   |
| DG        | 17.302***        | 7.737***          | 12.373***  |

In addition, the researchers investigate the unit root between the CADF test and Cross-Sectionally Augmented IPS (CIPS). GHE, GEE, and PG were found to be stationary at level, whereas SHDP, EG, INF, and DG were stationary at first difference. These results are listed in [Table 5](#).

**Table 5: CADF and CIPS Unit Root Tests Result**

| Variables | CIPS      |                | CADF      |                |
|-----------|-----------|----------------|-----------|----------------|
|           | Level     | 1st Difference | Level     | 1st difference |
| SHDP      | ----      | -5.403***      | ----      | -5.303***      |
| GHE       | -3.211*** | ----           | -2.129*** | ----           |
| GEE       | -2.453*** | ----           | -3.220*** | ----           |
| EG        | ----      | -5.784***      | ----      | -4.309***      |
| INF       | ----      | -4.393***      | ----      | -5.494***      |
| PG        | -2.378*** | ----           | -3.192*** | ----           |
| DG        | ----      | -5.404***      | ----      | -4.333***      |

In addition, the researchers employ an approach ([Westerlund & Edgerton, 2008](#)) to examine co-integration. The results demonstrated that the p-values are less than 0.05 and co-integration exists. These results are listed in [Table 6](#).

**Table 6: Co-integration Test Results**

| Model       | No Shift  |         | Mean Shift |         | Regime Shift |         |
|-------------|-----------|---------|------------|---------|--------------|---------|
|             | Test Stat | p-value | Test Stat  | p-value | Test Stat    | p-value |
| $LM_{\tau}$ | -4.303    | 0.000   | -5.430     | 0.000   | -4.333       | 0.000   |
| $LM_{\phi}$ | -4.463    | 0.000   | -5.332     | 0.000   | -4.578       | 0.000   |

The results revealed that public spending, such as government health and education expenditures, economic conditions, economic growth, inflation, population growth, and digitalization, positively links socio-human development in Asia's top ten GDP-producing nations. These relationships are listed in [Table 7](#).

**Table 7: CUP -BC and CUP-FM Test Results**

| Variables | CUP-FM   |        | CUP-BC   |        |
|-----------|----------|--------|----------|--------|
|           | Coeff    | t-stat | Coeff    | t-stat |
| GHE       | 3.201*** | 3.442  | 1.282**  | 2.492  |
| GEE       | 3.222*** | 5.437  | 0.473*** | 3.244  |
| EG        | 0.475*** | 4.392  | 0.433*** | 5.489  |
| INF       | 1.299*** | 3.298  | 2.373*** | 4.392  |
| PG        | 2.388*** | 5.492  | 1.272**  | 2.122  |
| DG        | 0.540*** | 4.381  | 0.711*** | 5.493  |

## DISCUSSIONS

Results indicated a positive relationship between government health expenditures and Socio-human development performance. The results are consistent with Khan, Zhang, Kumar, Zavadskas, and Streimikiene's (2020) conclusion that if the government develops its public spending policy with expenditures for public health enhancement as a top priority, the health of society's members will improve. It allows them to develop with renewed vitality. Therefore, government health spending enhances socioeconomic and human development performance. These results are consistent with Coccia's (2021) assertion that government health expenditures enhance the country's sanitation, medication, and dietary facilities. This enhances the efficacy of socio-human development.

Results indicated a positive relationship between government education expenditures and socio-human development performance. These findings are also consistent with Shaturaev's (2021) assertion that government spending on education prepares efficient human resources. It determines the success of socio-human development. The results are consistent with Yumashev et al. (2020), which suggests that when the government spends money on public education, it raises the public's awareness of their societal responsibilities. The sense of responsibility enables individuals to possess administrative and working skills contribute to social advancement. Thus, government health expenditures enhance the performance of socio-human development.

The results indicated a positive relationship between economic growth and socio-human development performance. The results are consistent with Akisik et al.'s (2020) assertion that countries with a higher GDP growth rate have a higher employment rate, standard of living, and more opportunities for society members. In this circumstance, socio-human development efficacy is enhanced. These findings concur with Amarasinghe et al.'s (2020) assertion that public and private entities are more likely to promote socio-human development if the economy achieves higher growth.

The results indicated a positive relationship between inflation and socio-human development performance. Bechtel (2022) provides support for the findings. According to a recent article, the country's inflationary circumstance encourages constructive and developmental programs. There is an increase in human capital due to equal access to education, medical, health, and economic opportunities. Consequently, socio-human development efficacy is enhanced. These results concur with those of Omodero (2019). As inflationary periods indicate economic prosperity, they present opportunities for socio-human development.

Results indicated a positive relationship between population growth and socio-human development performance. The results are consistent with Permanyer and Smits's (2020) finding that in areas where regulators observe significant population growth, there is an increase in practices that facilitate socioeconomic interactions. Therefore,

population expansion enhances socio-human development performance. These outcomes also align with Bloom, Houry, Kufenko, and Prettnier's findings from 2021. According to the study, population growth encourages human capital initiatives and enhances socio-human development performance.

The findings revealed a positive relationship between digitalization and socio-human development performance. The results are consistent with Ren et al.'s (2021) findings, which indicate that digitalization enhances the communication system and yields improved interaction outcomes. It improves the efficacy of socio-human development. These findings are also supported by Fernandez and Gallardo-Gallardo (2021), who demonstrate that the rise of digitalization in social and economic activities enables individuals to carry out their responsibilities, thereby enhancing socio-human development performance.

## IMPLICATIONS

The study has significant significance for Asia's developing nations. It investigates how policymakers can enhance the socio-human development performance of a nation. The study recommends that the government allocate public health funds to improve the country's socio-human development performance. There is a requirement that the government must have an education spending policy. In this scenario, the nation's socio-human development performance may be enhanced. To enhance socio-human development performance, the study suggests that policymakers should, with the help of appropriate initiatives, work to boost economic growth. It also implies that the inflation period must be prioritized and appropriately managed. It would accelerate the efficacy of socio-human development. The outcomes provide regulators with guidelines for devising regulations for achieving socio-human development by increasing public spending, enhancing economic conditions, and embracing digitalization. For a country to achieve a higher level of socio-human development, the study recommends that population planning be effective. In addition, the article suggests that digitalization should be encouraged to enhance socio-human development outcomes.

## CONCLUSION

This study aims to examine the relationship between government health and education spending, economic growth, inflation, population growth, digitalization, and socio-human development performance. The empirical data used for the research came from Asian nations. The study found a correlation between government health and education spending, economic growth, inflation, population growth, digitalization, and socio-human development performance. According to the findings, government spending on various short- and long-term health programs improves people's health, regenerates their physical and mental strength, and fosters tranquility. Thus, it enhances the performance of socio-human development.



Similarly, if the government is vigilant and invests in the development of the education system, it enhances people's knowledge and other abilities and creates success opportunities. Therefore, it results in enhanced socio-human development performance. Results indicated that people's financial situations improve when economic growth increases, and they can appreciate modern amenities. Consequently, their socio-human development may be higher. During an inflationary period, the government and the general populace may enjoy a robust financial position, improved resources, and increased opportunities for socioeconomic development.

Similarly, increased population growth promotes economic and socially responsible development, improving socio-human development outcomes. In addition, digitalization solves various social and economic problems and paves the way for more significant development. Therefore, digitalization enhances the performance of socio-human development.

## LIMITATIONS

There are several restrictions on the applicability of the current investigation. In the future, these limitations are likely to be eliminated. As determinants of socio-human development performance, the current study examines only factors such as government health and education expenditures, economic growth, inflation, population growth, and digitalization. Numerous additional determinants play a significant role in socio-human development performance. Future researchers should eliminate the restriction by introducing more variables to the research framework. In addition, the authors have collected data from Asian nations to corroborate the proposed relationships between factors. Evidence from a particular region restricts the scope of the inquiry. For general results, authors should survey diverse regions.

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