Impact of Economic and Social Infrastructures on the Long-run Economic Growth in Nepal

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Abstract

The long-term effects of Nepal's social and economic infrastructure on economic growth are examined in this study. It is based on secondary data gathered from numerous economic surveys, documents from the Nepalese government's budget, and publications from the country's central bank, Nepal Rastra Bank. The descriptive and exploratory research designs are applied. Descriptive statistics, correlation analysis, ARDL bound testing, Breusch-Godfrey serial correlation test, heteroscedasticity, and Jarque-Bera normality test are some of the statistical and econometric methods employed. Investment in social infrastructure and economic growth are significantly positively correlated. There is a strong correlation between social infrastructure and economic infrastructure in Nepal's economic development. There is long-run co-integration between economic growth and social and economic infrastructures. One percent increase in social infrastructure investment results in a 1.521 percent increase in GDP but a one percent increase in economic infrastructure results 0.456 percent increase in GDP. Investment in social infrastructure has a multiplier effect on the GDP growth of Nepal. Therefore, investment in social infrastructure is more profitable for the nation.

Keywords: Co-integration, investment, consistency, moderate, significance, Nepal

JEL classification: E_{01}, F_{63}, H_{54}, L_{90} .

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Introduction

Economic infrastructure serves as a catch-all phrase for various endeavors and is crucial to the development of industries, which boosts overall economic growth (Zhang et al., 2021). Infrastructure can be categorized as either social, economic, or human infrastructure. Economic infrastructure is the spending on network services like power, water, communication, and transportation, raising the usefulness of other forms of physical capital. In contrast, social infrastructure, such as hospitals and schools, comprises investments that increase human capital's productivity (Fedderke et al., 2006). For economic development and growth, the government invests in the economic infrastructure. Additionally, human or social infrastructure highlights the significance of public spending on health and education to improve human capital.

Transportation infrastructure investments, including roads, railways, and airways, are essential for promoting economic growth. Improved transportation networks facilitate the movement of goods, reduce transportation costs and enhance market integration (Sridhar & Sridhar, 2008). Access to reliable and affordable energy is crucial for economic growth. In Nepal, developing energy infrastructure, particularly hydropower, can potentially drive economic transformation. The expansion of energy infrastructure positively impacts manufacturing output and employment generation. The development of communication infrastructure contributes to economic growth by enabling the efficient flow of information, promoting e-commerce, and facilitating digital innovation (Fernando, 2018). Social infrastructure, such as health and communication, is essential for human capital formation (Straub, 2011). Education equips individuals with the necessary skills and knowledge to participate in the economy effectively. Similarly, improved healthcare infrastructure enhances labor productivity and reduces healthcare-related costs (Acharya, 2022).

Economic and social infrastructures are crucial in fostering long-term economic growth in Nepal. This includes physical infrastructure such as transportation networks, energy systems, telecommunications, and social infrastructure encompassing education, healthcare, and social services. By providing a solid foundation for economic activities and improving human capital, these infrastructures contribute to increased productivity, innovation, and overall economic development (Munnell, 1992).

Effective public spending on social and economic infrastructure can significantly aid in fostering private investment, which is necessary for economic progress. There are two primary ways to use infrastructure development to spur economic growth: to enhance the current infrastructure's conditions, maximize the material foundation of economic growth, and directly influence economic growth as a production factor input (Roohnavaz, 2018). The development of infrastructure promotes economic growth from

the perspective of price effect, investment effect, income effect, and employment effect (Noktehdan et al., 2019; Ferko et al., 2019; Mehdi et al., 2020; He et al., 2019).

The economic and social infrastructures significantly impact long-run economic growth in Nepal. Investments in transportation, energy, telecommunications, education, and healthcare infrastructures contribute to increased productivity, market integration, innovation, and human capital development. The cited studies provide empirical evidence supporting the positive relationship between these infrastructures and economic growth in Nepal.

This research aims to search for the impact of economic and social infrastructure on Nepal's long-run economic growth. It further aims to compare whether the social or economic infrastructure has a more influencing role in the long-run economic growth of Nepal.

The five sections of this study are listed below. The following sections make up the remainder of the article. The theoretical and empirical literature pertinent to this topic is presented in segment 2. Segment three offers the source, method, data processing, and other research techniques. The empirical results are covered in segment four, and the study's conclusion, policy implications, and limitations are covered in the final section.

Literature Review

Several theories and frameworks explore the relationship between infrastructure and economic growth. Here are four main ideas in this field. Infrastructure Productivity Theory suggests that infrastructure investments directly contribute to economic growth by enhancing productivity. According to this view, improved infrastructure, such as better transportation networks or reliable energy systems, lowers production costs, increases efficiency, and fosters innovation. It enables businesses to operate more effectively, facilitates trade and commerce, and attracts investments. The Infrastructure Productivity Theory (IPT) emphasizes the positive impact of infrastructure on economic output and productivity (Taylor, 2020).

Public Capital Theory focuses on the role of public infrastructure in supporting economic growth. It suggests that public investments in infrastructure, financed by the government, have positive spillover effects on the overall economy. The theory argues that infrastructure, like roads, bridges, schools, and hospitals, provides essential public services and creates an enabling environment for private sector activities. These investments enhance human capital, promote regional development, and attract businesses and industries, leading to long-term economic growth.

The New Economic Geography Theory, developed by Paul Krugman and others, explores the role of infrastructure in shaping regional and urban growth patterns. According to this theory, well-connected infrastructure networks influence the spatial

distribution of economic activities. Infrastructure, particularly transportation and communication systems, affects the accessibility of regions and cities, determines the flow of goods, services, and labor, and influences agglomeration economies. The theory suggests that investments in infrastructure can promote regional development and spatial concentration of economic activities (Schindler & Kanai, 2021)

The infrastructure-led approach is a development strategy that prioritizes constructing and enhancing physical infrastructure to drive economic growth, social development, and overall progress. This approach recognizes the pivotal role of infrastructure, such as transportation networks, energy systems, communication technologies, and public utilities, in supporting various sectors and enabling sustainable development (Zhu et al., 2023).

Nenavath (2021) observed the positive impact of infrastructure on economic growth in India in the long run. Palei (2015) examined the degree of the influence of infrastructure on national competitiveness, production, and productivity. He found social and economic infrastructures' positive and significant impact on economic progress. Fedderke et al. (2006) found that investment in infrastructure does appear to lead to economic growth in South Africa, but there is weak evidence of feedback from output to infrastructure. Similarly, Easterly and Rebelo (1993), Sanchez-Robles (1998), and Khan et al. (2020) found a positive and significant contribution of infrastructure to long-run economic growth.

Zergawu et al. (2020) examined the impact of infrastructure capital and institutional quality on economic growth using a large panel data set of 99 countries. They found the positive and significant effects of infrastructure on economic progress. Yu (2021), Daniel (2019), Ju and Lin (2015), and Mehdi et al. (2020) observed the positive impact of new infrastructure on economic growth and development.

Azolibe and Okonkwo (2020) found that the quantity and quality of telecommunication infrastructure affect the industrial sector output and, ultimately, economic growth. Similarly, Anyanwu (2018), Ahmed (2016), Sharma and Sehgal (2010), Goel (2002), and Mitra et al. (2016) found the positive and significant impact of transport and communication infrastructure on manufacturing output and increase in GDP. Hulten (1996), Easterly, and Levine (1996) observed that the effective use of infrastructure contributes to manufacturing and national aggregate output. Nnyanzi et al. (2022) observed that infrastructure development and governance are crucial to manufacturing output. Infrastructure development has a positive impact on manufacturing output. Aschauer (1989), Canning (1999), and Khan et al. (2020) observed the positive contribution of infrastructure to industrial growth, increasing overall production. Hulten (1996), Easterly and Levine (1996) observed that the effective use of infrastructure contributes to manufacturing and national aggregate output.

Different categories of literature have been reviewed in this section. Most of the research focuses on how infrastructure affects industrial or manufacturing output. Many studies focused on the effect of particular sectors' production, transportation, or communication on industrial output. Some studies focused on social infrastructure or economic infrastructure on economic growth. But this study tries to explore the impact of economic and social infrastructure on the long-run economic growth of Nepal. Therefore, there is a significant research gap between earlier and present studies.

Materials and Methods
Research design
The exploratory and descriptive research designs are used in this study. The exploratory study design is used to investigate the impact of economic and social infrastructure on Nepal's economic growth. The descriptive research design describes the findings of the calculations used to reach conclusions.

Data and Data Processing
This study is based on the secondary data collected from the various economic surveys and publications of Nepal Rastra Bank, the central bank of Nepal. The annual data from 1988 (F/Y 1987/88) to 2022 (F/Y 2021/22) are used to explore and describe the results and findings. Some statistical tools like descriptive statistics, unit root testing, autoregressive distributed lag (ARDL), and ARDL bound testing are used.

Variables and Model Specification
This model uses three variables: GDP and social and economic infrastructures. The Gross Domestic Product (GDP) is the dependent variable, and social and economic infrastructures are the independent variables. The increase in GDP is taken as economic growth. Transportation, communication, and electricity are economic infrastructures, and education and health-related infrastructure are social infrastructures. Economic growth is the function of economic and social infrastructures. In this sense,

GDP = f(ECOI, SCOI)   (1)

When variables are converted in logarithms, equation (1) can be written as:

LGDP = f(LECOI, ISCOI)   (2)

In this equation, LGDP indicates the Gross Domestic Product after taking the log. Similarly, LECOI and LSCOI show the economic and social infrastructure investment after taking a log. The ARDL model is used to explore the impact of social and economic infrastructure on economic growth. The Autoregressive Distributed Lag (ARDL) model is a time series econometric model that analyzes long-run and short-run relationships between variables. It is commonly used for modeling co-integration and estimating the long-term equilibrium relationship between variables. It is instrumental when

investigating the dynamics between variables that may exhibit different orders of integration (Narayan, 2005). The simple ARDL model is specified as follows:

$$\Delta Y_t = \alpha + \beta_0 Y_{t-1} + \beta_1 \Delta Y_{t-1} + \beta_2 \Delta Y_{t-2} + ... + \beta_p \Delta Y_{t-p} + \gamma X_t + \mu t \quad (3)$$

Where ΔY_t represents the differenced dependent variable at time t. Y_{t-1}, ΔY_{t-1}, ΔY_{t-2}, ..., ΔY_{t-p} represent lagged values of the dependent variable. X_t represents a set of explanatory variables. A represents the intercept, and β_0, β_1, β_2, ..., β_P, and γ are coefficients to be estimated. μt represents the error term or residual at time t. Equation (3) in a more compact form:

$$Y_t = \alpha + \sum_{i=1}^{i=p} \beta_i Y_{t-i} + \sum_{i=1}^{i=q} \gamma_i X_{t-i} + \mu t \quad (4)$$

In equation (4), p and q represent the lag of dependent and independent variables. Here $\sum_{i=1}^{i=p} \beta_i Y_{t-i}$ constitute the autoregressive part and $\sum_{i=1}^{i=q} \gamma_i X_{t-i}$ Constitute the distributed part of the ARDL model. After introducing the variables:

$$\Delta LGDP = \alpha + \beta_1 \Delta LGDP(-1) + \beta_2 \Delta LGDP(-2) + \gamma_1 LECOI + \gamma_2 LSCOI + \mu_t \quad (5)$$

More specifically,

$$\Delta LGDP = \alpha + \sum_{i=1}^{i=p} \beta_i LGDP_{t-i} + \sum_{i=1}^{i=q} \gamma_{i1} LECOI_{t-i} + \sum_{i=1}^{i=r} \gamma_{i2} LSCOI_{t-i} \quad (6)$$

This equation examines how changes in past GDP levels, economic infrastructures, and social infrastructures affect the current GDP growth rate. The coefficients β_i, γ_{i1}, and γ_{i2} provide information on the magnitude and significance of these relationships, indicating the extent to which each variable contributes to GDP growth. The lag lengths (p, q, r) determine the number of past periods considered for each variable.

Presentation and Analysis

Descriptive statistics

Descriptive statistics provide valuable information about the variables. The analysis highlights the average values, dispersion, skewness, kurtosis, and departure from normality. Understanding these statistics helps in assessing the characteristics and trends of the data. Table 1 shows the summary statistics of the actual data.

Table 1

Summary statistics of the variables

Descriptive Statistics

Description	GDP	ECOI	SCOI
Mean	1285181.	27452.11	12327.03
Median	589400.0	17054.70	12406.20
Maximum	4851620.	127140.6	37319.33
Minimum	76906.00	6751.700	2433.300
Std. Dev.	1403622.	28842.56	6892.278
Skewness	1.164	2.242	1.247
Kurtosis	3.049	6.997	5.954
Coefficient of variation	109.22%	105.07%	55.91%
Jarque-Bera	7.906	52.627	21.789
Probability	0.019	0.000	0.001
Observations	35	35	35

Where GDP= Gross Domestic Product of Nepal (in Million Rs.)

ECOI= Investment in economic infrastructure (in a million Rs.) and
SCOI= Investment in social infrastructure (in a million Rs.)

The provided table presents descriptive statistics for three variables: Gross Domestic Product (GDP), Investment in Economic Infrastructure (ECOI), and Investment in Social Infrastructure (SCOI) in Nepal. For GDP, the mean is 1,285,181 million Rs. The mean investment in economic and social infrastructure is 27,452.11, and social infrastructure is 12,327.03 million Rs. The mean values provide the idea of the central tendency of the data. The maximum GDP is 4,851,620 million Rs., ECOI is 127,140.6, and 37,319.33 million Rs, respectively. The minimum GDP is 76,906, ECOI is 6,751.7 million Rs, and SCOI is 2,433.3 million rupees. These values provide insight into the range of the data. The standard deviation of investment in social infrastructure is less than other variables. Lower standard deviation values imply smaller variability in the dataset. The distribution of data is found to be leptokurtic. The values of skewness are positive. So, the data are positively skewed. The coefficient of variation (CV) for GDP is 109.22 percent, ECOI is 105.07 percent, and SCOI is 55.91 percent. Higher CV values indicate more significant relative variability in the dataset. The high coefficient of variation values for GDP and ECOI suggest considerable variability close to their means, which can influence economic stability and investment decision-making. These results of Jarque-Bera probability indicate that the data for all three variables significantly deviate from a normal distribution.

Correlation Analysis

Correlation analysis is valuable for quantifying and understanding the relationship between variables. The associations between variables are measured in Table 2.

Table 2

Numerical measurement of the degree of associations

variables	LGDP	LSCOI	LECOI
LGDP	1.000	0.8987	0.7025
LSCOI	0.8987	1.000	0.5867
LECOI	0.7024	0.5867	1.000

The correlation analysis reveals that there are positive relationships between economic growth (LGDP) and both social infrastructure investment (LSCOI) and economic infrastructure investment (LECOI). A moderate positive correlation between LSCOI and LECOI also suggests a connection between social and economic infrastructure investments. These findings imply that investments in infrastructure, both social and economic, are essential factors contributing to economic growth and development. Easterly and Rebelo (1993), Sanchez-Robles (1998), and Khan et al. (2020) found a positive and significant contribution of infrastructure to long-run economic growth.

Autoregressive Distributed lag (ARDL) Model

Before operating the ARDL model, the stationary of data and optimum lag is determined. Unit root testing, or stationarity testing, is a statistical technique to determine if a unit root characterizes a time series variable. A unit root in a time series indicates that the variable is non-stationary, meaning its statistical properties, such as mean and variance, are not constant over time. Non-stationarity can lead to spurious regression results and incorrect statistical inference. The outcomes of unit root testing are listed in Table 3

Table 3

Results of stationarity testing

Variables	Criteria	Level		First intercept		Decision
		Intercept	Trend and intercept	Intercept	Trend and Intercept	
LGDP	ADF test P-value t- value	-1.025 0.733 -2.954	-4.201 0.013 -3.588	-4.228 0.0023 -2.957	-4.205 0.012 -3.574	Data is stationary at the level.
LECOI	ADF test P-value t- value	-1.995 0.288 -2.951	-3.701 0.037 -3.558	-4.973 0.000 -2.954	-5.069 0.0013 -3.553	Data is stationary at the level.
LSCOI	ADF test P-value t- value	-0.935 0.764 -2.954	-3.213 0.099 -3.553	-3.629 0.0104 -3.954	-3.422 0.0656 -3.553	Data is stationary after the first difference.

The test results indicate that the data for LGDP is stationary at the level, suggesting that it does not possess a unit root and is time-independent. At the level of trend and intercept, the p-value and t-value were 0.037 and -3.701, respectively, for investment in economic infrastructure (LECOI). The results indicate that the data for LECOI is also stationary at the level, showing time independence. The findings suggest that the data for expenditure on social infrastructure (LSCOI) is not stationary at the levels of intercept only and trend and intercept but becomes stationary after the first difference. In short, based on the ADF test results, the data for LGDP and LECOI are stationary at the level, implying that they are time-independent. On the other hand, the data for LSCOI requires first differencing to achieve stationarity, indicating the presence of a unit root or time dependency that can be removed through differencing.

Lag selection

Lag refers to the number of periods by which a variable is shifted or delayed concerning another variable. Lagging a variable allows us to examine how its past values relate to its current or future values, capturing potential dependencies and patterns in the data. Table 4 shows the results of lag selection under the Akaike Info Criteria (AIC) and Schwarz Info criterion (SIC).

Table 4

Lag selection under AIC and SIC Criteria

Criteria	Lag 1	Lag 2	Lag 3
Akaike Info Criteria (AIC)	-2.999	-2.944	-2.934
Schwarz info criterion (SIC)	-2.683	-2.385	-2.333

In Table 4, AIC and SIC are used for model selection. In this case, lag 1 has the lowest AIC and SIC values among the three lags, suggesting that it provides the best trade-off between model fit and complexity. The lower values of AIC and SIC indicate the best model.

ARDL Optimal Model

The Autoregressive Distributed Lag (ARDL) model captures the long-run relationship between dependent and independent variables in a time series context. The optimal model selection of ARDL involves determining the appropriate order of lags for the dependent and independent variables. As lag selection criteria indicate, lag one is selected for the optimal model. In Table 5, the optimal ARDL model is displayed.

Table 5

Results of optimal ARDL model
Dependent Variable: D(LGDP)
Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.429	0.208	2.065	0.049
D(LGDP(-1))	0.060	0.196	0.308	0.7608
D(LECOI(-1))	0.042	0.031	1.348	0.1893
D(LSCOI(-1))	0.031	0.0507	0.616	0.5432
LGDP(-1)	0.031	0.023	1.365	0.1841
LECOI(-1)	-0.059	0.028	-2.089	0.0466
LSCOI(-1)	-0.015	0.037	-0.415	0.6809
R-squared	0.2167	Mean dependent var		0.1210
Adjusted R-squared	0.0361	S.D. dependent var		0.0501
F-statistic	1.1995	Durbin-Watson stat		1.9513
Prob(F-statistic)	0.338	S.E of regression		0.0492

Serial correlation (observed R- squared =1.1529, P- value= 0.562)
Heteroscedasticity (Observed R-square = 4.745, Prob chi-square= 0.577)
Normality test (Jarque-Bera =1.529, Probability= 0.465)

In Figure 5, the optimal ARDL model for the dependent variable GDP includes lagged values of dependent and independent variables. The coefficient represents the estimated effect of these variables on economic growth or an increase in the GDP of Nepal. However, some coefficients are not statistically significant at the conventional level (P>0.05). The optimal ARDL equation is estimated as follows:

$$D(LGDP) = 0.429 + 0.060*D(LGDP(-1)) + 0.042*D(LECOI(-1)) + 0.031*D(LSCOI(-1)) + 0.031*LGDP(-1) - 0.059*LECOI(-1) - 0.015*LSCOI(-1) \qquad (7)$$

The R-squared value indicates that the model explains about 21.67 percent of the variation in economic growth. At the same time, the adjusted R-squared is lower, meaning that the models' explationary power is limited. The observed R-square probability value is 0.562 or 56.2 percent, more than 0.05 or 5 percent, level of significance. So, there is no problem with serial correlation. In the heteroscedasticity test, the observed value of R-square is 4.745, and the probability of Chi-square is 0.577, indicating that no issue of heteroscedasticity or residuals is homoscedasticity. The probability value of Jarque-Bera probability is 0.465. So, residuals are not normally distributed. The optimal model has the nature of stability, which can be observed from the CUSUM and CUSUM square tests. It is stable because the blue line is between two red boundary lines.

Figure 1

Stability checking employing CUSUM and CUSUM square test.
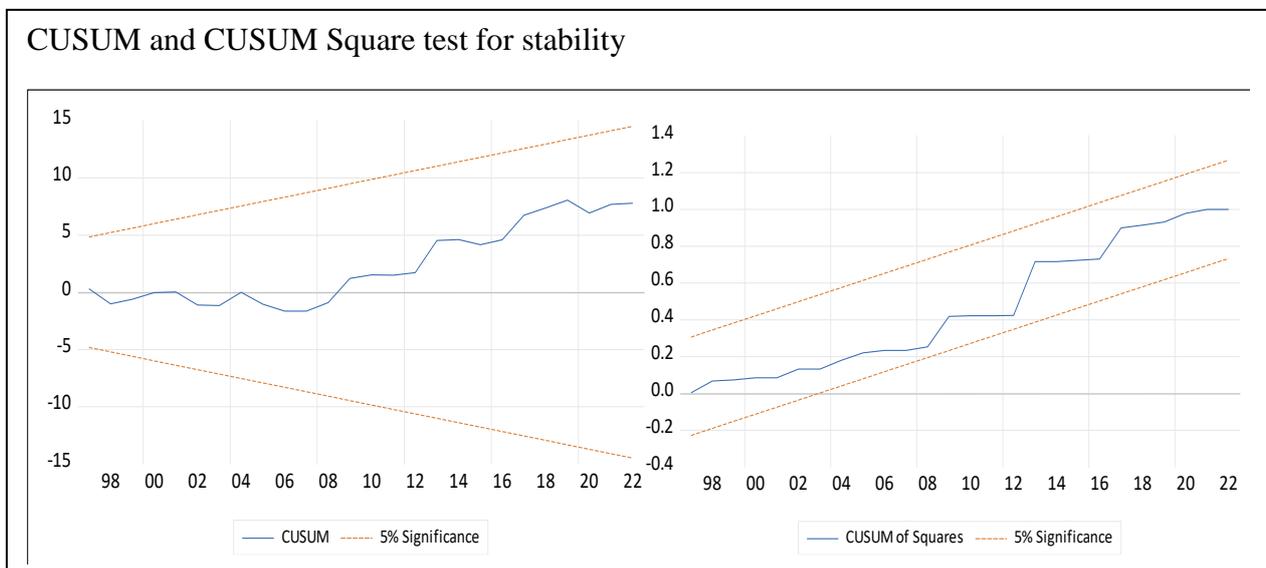
ARDL Bound Testing

ARDL bounds involve testing for co-integration, which indicates a stable relationship between the variables. In simple terms, ARDL-bound testing helps identify whether two or more variables move together over time and have a lasting connection. When the F-statistic value exceeds upper bounds I(1), there is a long-run relationship between variables. If the F-statistic value is less than lower bounds I(0), there is no long relationship between dependent and independent variables. They have only short-run

relationships. The result is undefined when the F-stat value lies between the lower and upper bound values. The outcomes of ARDL-bound testing are presented in Table 6.

Table 6

ARDL Bound testing to determine short-run and long-run test

H0: No co-integration	Value of F-statistic	5% critical bounds		1% critical bounds	
		Lower bounds, I(0)	Upper bounds, I(1)	Lower bounds, I(0)	Upper bounds, I(1)
computed value of F-statistics	52.88	3.10	3.87	4.13	5.00

In ARDL bound testing, the null hypothesis (H0) is that no co-integration exists between the tested variables. The computed value of the F-statistic is compared with critical bounds to determine whether the variables exhibit short-run or long-run relationships. If the computed F-statistic is greater than the upper bounds at the 5 percent or 1 percent significance levels, it indicates the presence of co-integration and rejects the null hypothesis. This suggests a long-run relationship between the variables. In short, the computed value of F-statistics is more than the upper bound value in 1 percent and 5 percent significance. So, there is a long-run association ship between variables.

Long Run ARDL Model

The given long-run ARDL model provides each variable's coefficients, standard errors, t-statistics, and probabilities. The long-run ARDL model is displayed in Table 7.

Table 7

Long-run ARDL model

Dependent Variable: LGDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LECOI	0.456	0.1423	3.208	0.003
LSCOI	1.521	0.1706	8.912	0.000
C	-5.201	1.369	-3.797	0.0006
R- Squared	0.855	Mean dependent variation		13.404
Adjusted R-Squared	0.845	S.D. dependent variation		1.238
S.E. of regression	0.487	F-statistics		94.011
Sum of Squared residual	7.590	Prob (F-stat)		0.000

Investment in economic infrastructure has a positive and significant impact on economic growth. The t-statistic of 3.208 is statistically significant at the 5% level, indicating that LECOI significantly impacts LGDP. The coefficient of 0.456 suggests that a one-unit increase in economic infrastructure (LECOI) leads to a 0.456-unit rise in GDP.

The t-statistic of 8.912 is highly significant (p < 0.001), indicating a strong positive relationship between LSCOI and LGDP. The coefficient of 1.521 implies that a one-unit increase in social infrastructure (LSCOI) results in a 1.521-unit increase in LGDP. From the perspectives of pricing effect, investment effect, income effect, and employment effect, Noktehdan et al. (2019), Ferko et al. (2019), Mehdi et al. (2020), and He et al. (2019) likewise came to the same conclusion. The long-run equation is estimated as follows:

$$LGDP = -5.201 + 0.456*LECOI + 1.521*LSCOI \quad (8)$$

The R-squared value of 0.855 indicates that approximately 85.5% of the variation in GDP can be explained by the independent variables in the model. This shows a reasonably good fit of the model to the data. The adjusted R-squared value of 0.845 considers the number of independent variables and provides a more conservative measure of model fit. The standard error of the regression (0.487) represents the average distance between the observed GDP values and the predicted values by the model. A lower value indicates a better fit. The F-statistic of 94.011 is highly significant (p < 0.001), suggesting that the overall model is statistically significant and provides a better fit than an intercept-only model. The value of 7.590 indicates the sum of squared errors or residuals in the model. A lower value suggests a better fit of the model to the data. In summary, the analysis indicates that economic and social infrastructure significantly impact economic growth in the long run. The model overall provides an excellent fit to the data, explaining a substantial portion of the variation in GDP.

Conclusion, Policy Implications, and Limitations

Three variables, GDP and social and economic infrastructure, are positively correlated. Investment in social and economic infrastructures determines Nepal's long-run economic growth. There is a high degree (r=0.8987) between economic growth and social infrastructure. The correlation coefficient between economic growth and economic infrastructure is 0.7025. The effect of investment on social infrastructures has a stronger correlation with economic growth than investment in economic infrastructures. Economic growth and social and economic infrastructure investment have a long-run association ship. In the long run, GDP, economic, and social infrastructure move together. In the long run, a one percent increase in economic infrastructure leads to a 0.456 percent increase in GDP. Similarly, a one percent increase in social infrastructure results in a 1.521 percent increase in the GDP of Nepal. Comparatively, social infrastructure has a more effective impact on economic growth than economic infrastructure.

These research findings explain what types of infrastructures influence long-term economic growth. The policymakers can make the rank of priority on the sector-wise

distribution of investment for economic growth. Investment in social infrastructure strongly correlates with economic growth, and the contribution to economic growth is more remarkable than economic infrastructure. The policymaker can emphasize the development of social infrastructure for long-run economic growth. It helps to decide the importance of human capital formation for long-term economic growth by comparing it with economic infrastructures like transport and communication.

This study is only related to the secondary data of 35 years, covering fiscal years 1987/88 to 2021/22. Only two independent variables, social and economic infrastructures, determine long-run economic growth. In the analysis, an increase in GDP is taken as the nation's economic growth. The ARDL bound testing approach is utilized to explore the impact of social and economic infrastructure on the economic growth of Nepal. Therefore, further study is necessary using more data points, countries, variables, tools, techniques, and methods.

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