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ECOLOGICAL FOOTPRINTS CONSUMPTION, INDUSTRIALIZATION AND HUMAN DEVELOPMENT OF SELECTED ASIAN COUNTRIES

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ABSTRACT

Human development and industrialisation have received attention but their explicit connexion has not been discovered passably. Considering this, the current study highlights the relationship between ecological footprint consumption and industrialization with other variables in human development. In this study, we have used panel data from 8 Asian nations from 2011 to 2020. The human development index is used as the dependent variable. However, variables such as ecological footprint consumption, industrialization, financial development, and labor force participation rate are utilized as explanatory variables here. By using the random effect method, the result indicated that ecological footprint consumption, industrialization, and domestic credit to private sectors have significantly enhanced the human development of Asian countries. The study results suggested more earning chances and a stable environment for high growth and development. Moreover, there is a dire need for an improved financial system to increase the human development and welfare of Asian economies.

Keywords: Ecological footprints; Consumption; Industrialization; Human Development; Asian economies.
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INTRODUCTION

Human development improves the welfare of the nations. Human development and industrialization have much consideration in development economics, however, their obvious association with each other has not been explored sufficiently (Rahman, 2011). The assessment of the connection between HDI and industrialization has been accompanied by economic growth as an interesting factor in work like that by Ranis, Steward and Ramirez (2000). Industrialization has been used as a major factor in measuring human development and was established to add positively to human development levels (Oyelaran-Oyeyinka, 2014). Teselios et al. (2014) claim that the human development index has been verified as valuable for evidence distribution, delivery of analysis and benevolent in conceivable guiding principle for the expansion of operative public strategies. As stated by the UNDP (1990), this index is used instrumentally in measuring human development levels. The scope of gaging human development as incorporated in HDI is dependent on three scopes, which are the aptitude to live longer and more healthily, education approachability, and the civility of the living standard. These magnitudes are auxiliary evaluated by indicators.

Labor force participation also improves the human development of the people of nations. In order to attain human development goals, it has been a dynamic policy matter. Persons with all their expertise and talents

may be the workforce of the majority of nations and thus, this may improve human development. High indulgence of persons as workers become financially strong and enhance human development.

Financial development has been observed as a major contributor to enhancing human development and decreasing income disparity. It seems vital in having high growth and sustainable development that qualified and disadvantaged individuals may approach financial amenities with the help of ICT (Sharma 2016; Demirgüç-Kunt et al., 2013). Community workers get benefits by availing domestic credit in order to invest more in businesses. Financial inclusion may become a source of increasing expediency for experts and deprived sections of society of elementary pecuniary comforts like investments which may improve income (Demirgüç-Kunt et al., 2013). It has been observed that a plentiful of factors like remittances, growth, unemployment and inflation, etc. affect the development of nations. Though, such work focuses on the influence of ecological footprints consumption, with industrialization, financial development, and labor force participation rate on the human development index of economies.

Financial development determines and enhances human development. Highlighting the role of financial inclusion, Sarma and Pais (2008) examined the positive relationship between financial inclusion and the human development of economies. Information communication and technology also promote human development. In Ghana, Ojo (2012) pointed out that information communication and technology have expanded the living standards of the general public. It has contributed a lot to development and economic growth which reduced poverty levels and increased welfare. Oyelaran-Oyeyinka (2014) focused on employees' living standards and poverty in Nigeria. It was found that workers had improved their standard of living by getting work and were found financially strong. Findings also indicated that fifty percent of the workers had used all social and human capital capital in that economy.

Asngu and Nawachukwu (2016) worked on inclusive development by using data from 2000 to 2012 Sub-Saharan Africa. The authors have used regression techniques and the GMM method. It was found that mobile phones and economic governance enhanced inclusive development. By using data from twenty eight European Union member states and Turkey, Siyakiya (2017) used data from 1995 to 2014 in Turkey and European states. Findings showed that better quality institutions played a significant role in improving economic performance, particularly in middle income countries. Khan et al. (2019) investigated a link between ICT, economic growth, and the human development index in Pakistan by using data from 1990 to 2014. The study results highlighted huge human development because of information communication and technology and growth. It was suggested that foreign direct investment should be improved.

Zahid et al. (2020) focused on the influence of non-renewable and renewable energy consumption on sustainable development in five SAARC economies by using data from 1990 to 2017. It was found an inverted U-shape link of non-renewable energy and human development. Chen et al. (2021) used data from 1990 to 2016 and emphasized on the role of ecological footprints consumption on human capital in 110 nations of the world. The result showed that human capital initially increased and after that reduced due to ecological footprint consumption. Moreover, high urbanization has improved human capital. By using data from 2005 to 2020, Verma et al. (2023) focused on the significant role of information communication and technology in SAARC economies. It was found that ICT diffusion, globalization, and growth led to improved human development. Wang et al. (2022) emphasized how renewable energy consumption improved the Human Development Index of OECD nations. Results showed that renewable energy and human and physical capital improved sustainable development.

Akpoghelie et al. (2024) also focused on the role of energy consumption and human development by using data from 1990 to 2022 in 21 African and OECD economies. Results revealed that energy consumption has enhanced human development and industrial sector performance. Nakya et al. (2024) focused on how poverty levels, unemployment and growth affected the human development index in Nusa Tenggara Barat province by using data from 2017 to 2022. It was found the poverty level decreased human development.

In this study, we have focused on how ecological footprints consumption per capita, industrialization, financial development and labor force participation affect the human development of selected Asian nations. The existing work would make available policy for more developments.

Significance of the Study

It has been noted that factors like CO2, growth, unemployment, and education may influence growth and development. We have made an effort to highlight the more significant variables affecting the human development of Asian economies.

Research Hypothesis

The hypotheses are shown in the following.

H1: There is a positive link between ecological footprint consumption and human development index.

H2: Industrialization and human development index are positively associated.

H 3: The higher the domestic credit to the private sector, the higher the human development.

H 4: Labor force participation rate and human development are positively linked.

METHODOLOGY

Concerning the significance of human development in Asian economies, this research has utilized data from 2011 to 2020 from eight selected Asian emerging nations. The study emphasized on how ecological footprints consumption, industrialization, financial development and labor force participation enhance human development in these countries. The panel of nations such as Bangladesh, India, Indonesia, Iran, Jordan, Malaysia, Pakistan and the Phillipines has been selected for this research. We have taken data from World Development Indicators. Here, Human Development Index is used as the dependent variable and independent variables are used as ecological footprints consumption, industrialization, domestic credit to the private sector and labor force participation rate. Moreover, the study has used the random effect technique to show the influence of explanatory factors on the human development index of nations.

In this research work, we have utilized panel data to examine how human development can be enhanced by ecological footprint consumption with other control variables.

The econometric models that are utilized are assumed as:

$$HDINX = \beta 0 + \beta 1 LEFPCNit + \beta 2\ DCPSit + \beta 3\ INDUSTit + \beta 4\ LFPRit + uit \quad (1)$$

HDINX= Human Development Index

LEFPCN= Log ecological footprints consumption per capita

DCPS= Domestic credit to the private sector as % of GDP

INDUST= Industrialization (manufacturing value added growth rate)

LFPR=Labor force participation rate

it = (time trend)

uit= (error term)

RESULTS AND EMPIRICAL ANALYSIS

Table 1 points out that on average, log ecological footprints consumption per capita are 0.1883 percent. However, on average, the human development index seemed to be 0.6920 percent of selected Asian countries. The sample having a range of human development index been noted has been noted as 0.513 to 0.813. Industrialization has been observed at 5.60 percent in the concerned nations. Moreover, overage,

domestic credit to the private sector is 52.7044 percent in this data. Finally, the labor force participation rate is noted as 63.2565 percent. The difference between the mean and standard deviation indicates the normality of the data.

Table 1. Descriptive statistics of key factors.

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
HDINX	90	0.6920	0.0856	0.516	0.813
LEFPCN	54	0.1883	0.2337	-0.1290	0.6262
INDUST	90	5.6035	3.8910	-5.2512	13.4022
DCPS	72	52.7044	28.0449	15.3861	125.0618
LFPR	90	63.2565	6.6411	53.717	76.567

Table 2 highlights results using the random effect method. The probability value of chi2 is 0.9748 which suggests random effect result validity. It indicates that ecological footprint consumption with major control variables increases the human development index in some selected Asian economies.

Table 2. Random effect result, dependent variable is human development index.

Variables	Coefficients, Standard Errors and Z-values
LEFPCN	0.2108 *
	0.0529
	(3.98)
INDUST	0.0013*
	0.0005
	(2.84)
DCPS	0.0006* **
	0.0003
	(1.82)
LFPR	0.0018
	0.0016
	(1.16)
Con	0.4920
	0.0958
	(5.13)
R2 Within	0.47
R2 Between	0.70
R2 Overall	0.70

z-values are in parentheses; ** p<0.05, * p<0.1 and*** p< 0.01

Ecological footprints consumption seems to determine the human development of Asian nations. A lot of workers are indulged in general economic actions and are increasing production and investment chances. This process leads to an increase more earnings creates employment and improves living standards and development. The study result highlighted that a one percent increase in ecological footprints consumption resulted in increased human development by 0.2108 percent. The study result is supported by Chen et al. (2021).

Industrialization has played a noteworthy role in improving the growth and development of Asian nations. Much of the expert and semi-skilled population is working in industry and increasing growth which results in more earnings. This will improve living standards and thus increase human development in Asia nations. Findings indicated that one percent increased manufacturing value-added growth will result in an increased human development index by 0.0013 percent. The result is consistent with (Oyelaran-Oyeyinka, 2014).

The role of financial development cannot be ignored in improving the human development of Asian states. More access to domestic credit increases investment chances which as a result would enhance the human development of the concerned nations. It is found that a one percent increase in domestic credit to the private sector will enhance the human development index by 0.0006 percent. The finding is in line with the result by Sarma and Pais (2008). The labor force participation rate leads to increased economic growth and human development index. Results showed a positive association between the labor force participation rate and the human development index.

CONCLUSIONS

The existing study reveals the key determinants of the human development index of some Asian countries by using the random effect technique. By using a panel data set, an effort has been made to highlight the positive role of ecological footprints consumption per capita, industrialization, and human development index of the economies. It has also been tried to point out the role of improved financial development to enhance the human development of selected concerned nations. The result highlights the substantial role of ecological footprint consumption along with industrialization in improving the human development index of nations. The people performing economic activities in industry and other sectors of the economy have contributed much to the production, growth, and human development index. Moreover, the study also shows a positive association between domestic credit to the private sector and the human development index of Asian nations. Labor force participation also seems to be increasing the human development index of economies. In view of such significant findings, it is suggested that there should be more investment and earning chances in industry along with other sectors of the economy so that's why more labor should participate in the production process. There is a dire need for an improved financial structure to provide more loaning facilities which will result in increased investment chances and more human development index.

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