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"Beyond Connectivity: Unpacking the Economic Implications of Internet Usage in West Asia"

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Abstract: *In the investigation of Internet usage among individuals in West Asia, this study explores the multifaceted interplay between information communication technology (ICT) diffusion, economic variables, and income inequalities. Spanning the years 2001 to 2022, the research employs fixed and random effect models to analyze data from nine West Asian countries. The study reveals intricate dynamics, illustrating that while Gross Domestic Product per capita (GDPPC) exhibits a positive correlation with Internet usage proxies, its impact is not uniformly significant. Moreover, research and development expenditures emerge as a significant factor, underscoring the pivotal role of innovation in shaping Internet adoption patterns. This study contributes valuable insights into the socioeconomic implications of ICT diffusion and Internet usage in the unique context of West Asia.*

Keywords: Economic Implication , GDPPC, ICT, IUI, West Asia,

1. Introduction

In the dynamic landscape of the 21st century, the integration of Information Communication Technology (ICT) stands as a transformative force, redefining the contours of societal structures and economic paradigms. At the heart of this technological evolution lies the intricate relationship between Internet Usage by Individuals (IUI) and key economic factors, a nexus that holds profound implications for the trajectory of West Asia's development. This scholarly exploration endeavors to unravel the complexities enmeshed in the interplay between digital connectivity and economic indicators within the region. Motivated by the recognition that the digital divide extends beyond technological access to encompass economic structures and social equity, this research endeavors to cast light on the nuanced connections that underpin West Asia's technological trajectory. As digital connectivity assumes a pivotal role in shaping progress and inclusivity, a deeper understanding of the intricate relationships between IUI and economic indicators becomes imperative. This exploration transcends the conventional boundaries of technological studies, aiming to decipher the intricate tapestry of West Asia's journey towards a digitally empowered future. The insights derived from this investigation are poised to offer valuable guidance to policymakers, researchers, and stakeholders, providing a holistic perspective that spans the realms of technology, economics, and societal transformation. Three factors contribute to ICT's growth: increasing usage or continuous improvements in performance, making it a factor of production, increased productivity due to high advances produced by ICT, and external factors. The impact of ICT on growth is not the same in developing countries as it is in developed ones. This could be caused by a range

of factors. The absence of adequate human resources and other complementarily factors, like R&D expenses, may be present in developing countries. The reason is that they receive fewer benefits from ICT investments compared to developed nations. Developing countries can benefit from ICT to promote small and incremental innovations, as suggested by Niebel (2018) and other sources. These features indicate that ICTs can facilitate "leapfrogging," a development technique. Industrialized countries are bound by higher-level technologies due to the earlier developed technological and institutional infrastructure. Developing countries' lack of basic technology infrastructures makes it possible to move directly to superior technologies. By prioritizing the latest technologies, these countries can bypass certain stages of development and gain an advantage by leveraging the benefits of technological advancements. According to Reinmueller (2001), the "leapfrogging hypothesis" is a theory. The literature on inequality and its effects on economic development is extensive. The impact of inequality on growth outcomes has been primarily investigated through cross-sectional growth regressions using individual income data, with the average growth rate of income per capita being regressed on initial inequality and other control variables (Alesina & Rodrik, 1994; Persson y Tabellini, 1995). Chen's (2003) cross-sectional analysis revealed that there is a 'U' shaped relationship between the distribution of income and long-term EG. Fixation-based estimates were made by Forbes (2000) and Li and Zou (1998), who used panel data. Panizza (2002) suggests that the relationship between inequality and growth can be estimated using GMM estimations. The effects of inequality on growth can be separated into long- and short-term by Partridge (2005). Depending on the data and methods used, empirical literature has produced conflicting results regarding the effects of inequality on EG. The negative impact of inequality on growth has been mostly supported by empirical cross-country studies (Alesina & Rodrik, 1994; Persson et al., 1995), while other studies have shown a positive correlation (Forbes, 2000; Li n Zou: 1998).

2. Review of Literature

Lee, Shao, and Vinze (2018) explored sociological transformation role of ICT in fostering double edge sword .the study used 37 countries related to 3 economically different levels taken for estimation by panel 1995 -2012 on the bases of leveraging endogenous theory and social network theory that restricted ICT on GDP. To developing economics took the best results from overall ICT but insignificant and inclined –ive impact on developed ones and also mix impact to stimulate socio and political economies transformations. For ICT to enable bright societies suggested actionable directions need to build. Majeed and Ayub (2018) explored a comparative global analysis of ICT and economic growth nexus at regional levels, the sample was taken from 149 countries from the period of 1980-2015 by applying OLS, pool OLS, two stage least squares (2SLS) and GMM techniques. Results showed all indicators of ICT boosted EG at both levels regional and global. Online service, e-government, and telecommunication infrastructure enhanced EG took more conductive credit. Emerging and developing countries gained more form of ICT than developed nations which validated the argument that these economies leapfrogged by ICT. The study showed investment in ICT took essential to get maximum benefits from the acquaintance financially viable of 21 century.

Sinha and Sengupta (2019) expressed linkage expansion among ICT, EG and inflow of FDI by analyzing Asia Pacific Developing Countries. The study used different advanced panel data techniques as fully modified ordinary least square (FMOLS), dynamic ordinary least square (DOLS) PMGI, mean group estimator (MGI), dynamic fix effect methods (DFEM) which were adopted by World Bank (2018) and WTCI (2018) over the period of 2001 to 2017. ICT was significantly and positively efficient and promoted growth in DC documented during present era because interrelation verified of ICT, FDI and EG by different theories and empirics and drew more FDI inflow in these countries. The study suggested for taking more inflow of FDI strengthens the ICT infrastructure that might be experience best growth. Myovella,

Karacuka and Haucap (2019) preceded the comparative analysis of sub Saharan African and OECD economies about digitalization on EG, 11 years dataset consisted from 2006-2016 for 33 OECD and 41 SSA by GMM estimators. Both group of countries positively attached with digitalization and EG and broad band internet maximum for OECD than SSA counterpart but mobile telecommunications showed lower impact for OECD as compared to SSA which realized more breathing space for enhancing more opportunities in least economies with less advance technologies. The study suggested policy implementations for SSA to grab more and more benefits from advance innovations for improving EG might be more invested in ICT with other linkage infrastructures. David and Grobler (2020) embedded analysis the development and economic growth on innovation with ICT as impetus. Trough principal component analysis for capturing ICT, mobile telephone, fixed line and internet subscription used to real GDP and HDI. The results showed mobile telecommunication grew faster than other telecommunication indicators. EG and Development in Africa was positively impact by ICT penetration. Thus the study recommended doing simultaneous investment in fix and internet access but impetus of ICT was optionally into fully tapped. Chien et al. (2021) explained ICT role encountering envoi mental degradation by SDG framework for BRICS countries by employed GMM – quartile regression. DH panel heterogeneous causality test confirmed bidirectional causality between parameters which deployed ICT and economic growth both were all quintiles and lowest in lower quintiles and highest in higher ones of carbon dioxide emissions. Results confirmed EKC hypothesis and getting the SDGS objectives study suggested to devise policy framework to set out the policy makers. Shamadasani (2021) probed importance of rural infrastructure (INFRA) on agriculture production in India which was absolutely depended on the large scale rural roads programmed in 2000 by central government. the study used house hold panel in difference in differences framework and was found +ive impact on complementary production inputs as well as hiring labor by households .labor markets interactions and productions were hampered by poor roads conditions . Gheraia et al. (2021) explained role of moderation ICT b/w financial development and EG in Saudian economy. The time span covered 1990-2019 using for ARDL model with bootstrap approach. The study showed financial development effected –ively to ICT and EG but ICT diffusion positive and statistically significantly effected on EG. ICT had promoted EG through two ways such as financial development and directly as well in Saudian sectors.

3. Data

The study focuses on a panel dataset spanning the years 2001 to 2022, encompassing nine West Asian countries. The dataset includes variables related to Internet Using Individuals (IUI) and key economic factors. The primary sources for data acquisition are reputable international databases, telecommunications reports, and economic indicators from reliable sources such as the World Bank, International Telecommunication Union (ITU), and regional economic institutions. The panel structure is designed to capture both temporal and cross-sectional variations in IUI and economic variables. Each country is treated as an individual entity over time, creating a comprehensive dataset that facilitates a nuanced analysis of the relationship between IUI and economic factors.

3.1. Variables:

3.1.1. Dependent Variable:

Internet Using Individuals (IUI): Internet usage by individuals measured as the number of individuals per 100 people accessing the Internet.

3.1.2. Independent Variables:

Gross Domestic Product per Capita (GDPPC): A measure of the economic output per capita, indicating the overall economic health of a country.

Research and Development Expenditures (R&DEXP): The financial investments in research and development activities,

highlighting a country's commitment to innovation.

Gini Index: A measure of income inequality within a country, providing insights into the distribution of economic resources.

Poverty Headcount Ratio (PHCR): The proportion of the population living below the national poverty line, offering a perspective on socio-economic disparities.

4. Methodology

One distinct model is constructed, with IUI as the dependent variable. Log-log model is employed, acknowledging the non-linear relationships between IUI and economic factors. The relationship between IUI and economic factors is modeled using a log-log specification to account for nonlinear relationships. Both fixed and random effect models are considered to control for time-invariant country-specific effects and to capture unobserved heterogeneity. The choice between fixed and random effects is determined using the Haussmann test. Stationary tests, residual cross-section dependency tests, and normality tests are applied to ensure the robustness of the model. Preliminary examination of the data involves computing descriptive statistics for IUI and economic variables. The correlation between IUI and economic variables is explored to identify initial patterns. Stationary tests are performed to assess the stationary of the panel data. The log-log panel data model is estimated using fixed and random effects. The Haussmann test is applied to select between fixed and random effects models. Additional diagnostic tests are conducted to ensure model validity. The coefficients of the model are interpreted to ascertain the strength and direction of the relationships. This robust data and methodology framework ensures a comprehensive examination of the relationship between Internet usage by individuals and economic factors in West Asia, offering valuable insights for policymakers and researchers in the region.

5. Model Specifications

Model

Panel Data Model: The Relationship between Information and Communication Technology Use Index (IUI) and Economic Factors in West Asia (WA)

$$Log\ IUI = f\ log\ (GDPPC, GI, PHCR, R\&DEXP)$$

$$nIUI_{it} = \beta_0 + \beta_1 \ln GDPPC_{it} + \beta_2 \ln GI_{it} + \beta_3 \ln PHCR_{it} + \beta_4 \ln R\&DEXP_{it} + \alpha_i + u_{it}$$

Where:

- IUI_{it} represents the ICT use Index in country i at time t in West Asia (WA).
- $GDPPC_{it}$ represents the GDPPC in country i at time t in WA.
- GI_{it} represents the GI Index in country i at time t in WA, which measures income inequality.
- $PHCR_{it}$ represents the PHCR in country i at time t in WA, indicating the prevalence of poverty.
- $R\&DEXP_{it}$ represents R&DEXP in country i at time t in WA, reflecting investments in innovation and technology.
- β_0 is the intercept, representing the baseline level of IUI when all independent variables are zero.
- β1, β2, β3, β4are the coefficients representing the respective effects of GDPPC, GI, PHCR, and R&DEXP on IUI in WA.
- αi represents country-specific fixed effects, capturing unobserved heterogeneity among countries in WA.
- u_{it} is the error term, capturing unexplained variation in the Information and Communication Technology Use Index.
- *In* represents log form of all variables.

Panel Data Model 3 investigates the relationship between the ICT Index (IUI) and key economic factors in West Asia (WA) over time. The equation accounts for both country-specific fixed effects (α_i), which capture unobserved factors that may vary across countries in WA, and the error term (u_{it}).

- $\beta_1$measures the impact of GDPPC on IUI in WA. A positive β1suggests that higher GDP per capita is associated with a higher level

of ICT use, as reflected in the IUI.

- $\beta_2$assesses the effect of the GI on IUI in WA. A negative $\beta_2$indicates that higher income inequality, as measured by the Gini Index, is linked to lower ICT use in WA.
- $\beta_3$gauges the relationship between the PHCR and IUI in WA. A negative $\beta_3$implies that a higher poverty rate is associated with lower ICT use.
- $\beta_4$measures the influence of R&DEXP on IUI in WA. A positive $\beta_4$suggests that increased investments in research and development lead to higher ICT use, as indicated by the IUI.

This panel data model allows for a comprehensive analysis of the relationship between economic factors and ICT use in West Asia over time that can be interpreted the coefficients to understand the direction and strength of these relationships, aiding policymakers and stakeholders in making informed decisions about ICT adoption and economic development strategies specific to the WA region.

5.1. Descriptive Statistics and Correlation Analysis (DSCA)

DSCA is describing variables statistics in Table 5.1.

Table 5.1: Descriptive Statistics of key variables (2001-2022)

	LIUI	LGDPPC	LGI	LPHCR	LR_DEXP
MX	**3.603169**	**1.422800**	**3.576508**	**2.958791**	**-1.513069**
MID	**3.847677**	**1.419839**	**3.595038**	**3.023573**	**-1.522645**
Mix	**4.703404**	**3.283168**	**4.013356**	**3.600385**	**0.963980**
Min	**1.195607**	**0.083722**	**3.145062**	**1.961813**	**-4.258582**
Std. Dev.	**0.919825**	**0.735203**	**0.192289**	**0.345266**	**1.263349**
Skewness	**-0.802454**	**0.213139**	**0.080384**	**-0.683510**	**0.031001**
Kurtosis	**2.541519**	**2.491470**	**2.908811**	**3.204009**	**2.209348**
JB	**22.98397**	**3.632610**	**0.281833**	**15.76051**	**5.189048**
Probability	**0.000010**	**0.162626**	**0.868562**	**0.000378**	**0.074681**
Sum	**713.4276**	**281.7145**	**708.1485**	**585.8406**	**-299.5877**
Sum Sq. Dev.	**166.6775**	**106.4830**	**7.284105**	**23.48410**	**314.4218**
Observations	**198**	**198**	**198**	**198**	**198**

Author's calculation

In Table 5.1 depicts DSA of LIUI, GDPPC, GI and PHCR. Average value of individual using internet (IUI) is 3.60 with 3.84 MID. Maxi is 4.70 with min value 1.19.S.D is 0.19 which low fluctuations around the MX. Kurtosis is 2.54 which is meso-kurtic with flat top and skewness is -0.425 and MX value is less than MID so IUI is -IVE skewed distribution. P value of IUI is 0.000010 < than 0.05 or 5% which is significant with non normal distribution.

Table 5.2: CM of key variables (2001-2022)

	LIUI	LGDPPC	LGI	LPHCR	LR_DEXP
LIUI	1				
LGDPPC	-0.164894	1			
LGI	-0.399926	0.211299	1		
LPHCR	-0.413501	0.163386	0.455263	1	
LR_DEXP	0.133790	0.214769	0.136897	0.127092	1

Author's calculation

Table 5.2 shows correlation results of GDPPC, GI, and IUI per 100 people, R&DEXP and PHCR. GDPPC (0.16) is --IVE correlated with IUI which indicates very weak correlation b/w GDPPC and IUI. GI (-0.39) with IUI is also -ive correlated with each other. Correlation b/w PHCR and IUI is -0.413 which both express the moderate correlation b/w PHCR with IUI. The results reports -ive and week correlation b/w GDPPC with IUI, R&DEXP with IUI but IUI highly correlated with GI and PHCR.PURT shows in Table 5.3.

5.3. Panel Unit Root Test

The study explains PURT to check the stationarity of data set in Table 5.3.

Table 5.3: Panel Unit Root Test Summary

Method	Statistic	Prob.**	Cross-sections	Obs Con
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.23831	0.0000	9	180 I(0)
Null: Unit root (assumes individual unit root process)				
Im, BP and Shin W-stat	-3.10186	0.0010	9	180 I(0)
ADF - Fisher Chi-square	39.9442	0.0021	9	180 I(0)
PP - Fisher Chi-square	79.3561	0.0000	9	189 I(0)

Table 5.3 explains that all concern variables like GDPPC, GI, IUI, and R&DEXP and PHCR are stationary in their level I (0) and the results of such test reports, it is clear that the H0 of unit roots for the entire panel unit root tests are rejected at level with individual intercept and Mix lags one. Table 5.4 is showing POLS below.

5.4. Panel Ordinary Least Squares

The study explores POLS to run regression of following panel in Table 5.4.

Table 5.4: Panel Least Squares Sample: (2001 to 2022)

Dependent Variable: Individuals using internet per 100 people (IUI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDPPC	-0.135321	0.079700	-1.697868	0.0911
LGI	-1.298835	0.332286	-3.908792	0.0001
LPHCR	-0.803949	0.183339	-4.385049	0.0000
LR_DEXP	0.169311	0.045752	3.700619	0.0003
C	11.07589	1.069049	10.36051	0.0000
R2d	0.282317	**MIDV**		3.603169
Adjusted R2d	0.267443	**S.D. dependent var**		0.919825
S.E. of regression	0.787274	**Akaike info criterion**		2.384448
Sum squared resid	119.6216	**Schwarz criterion**		2.467485
Log likelihood	-231.0604	**Hannan-Quinn criter.**		2.418059
F-statistic	18.98028	**DW**		0.136600
Prob(F-statistic)	0.000000			

In Table 5.4, this is the 3rd model in which individual using internet per hundred people use as dependent VARI with GDPPC, GI, PHCR and R&DEXP for independent variables.

GDPPC is negatively correlated with IUI as 1 % ↑ DGPPC will 0.1352 % ↓ in IUI which is significant 0.0911 (t- stat,-1.69).GI is highly significant with IUI 0.0001 and t statistic is also greater than 2 which is -3.908 as 1 % ↑ in GI will -1.364 % ↓ in IUI.PHCR is also highly significant (prob 0.0000) with IUI as 1% ↑ in PHCR will ↓ 0.80 % in IUI.R & DEXP is also highly significant as 1%↑ IUI will 0.16% ↑ R&DEXP. So, R square is 0.282,adjusted R squared 0.267,S.E of regression 0.78 ,HQC 2.41,AIC 2.38,SC 2.46 and D-W 0.13.As whole model is significant which shows prob 0.000000 with 18.98 F –statistics.FEM is showed in Table 5.5.

5.5. Fix effect method

The study is exploring FEM/REM by Micro panel in Table 5.5.

Table 5.5: Fix effect method Sample: (2001 to 2022)

Dependent Variable: Individual using internet per 100 people (IUI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDPPC	0.026950	0.067710	0.398024	0.6911
LGI	-2.598340	0.461822	-5.626283	0.0000
LPHCR	-1.801536	0.238250	-7.561531	0.0000
LR_DEXP	0.106025	0.061523	1.723338	0.0865
C	18.42529	1.609572	11.44733	0.0000

"Effects Specification"

CSF (dummy variables)

R2d	0.541516	**MIDV**	3.603169
Adjusted R2d	0.511776	**S.D. dependent var**	0.919825
S.E. of regression	0.642710	**AIQ**	2.017155
Sum squared resid	76.41903	**SC**	2.233051
Log likelihood	-186.6983	**HQC**	2.104543
F-statistic	18.20862	**DW**	0.396041
Prob(F-statistic)	0.000000		

In Table 5.5, Intercept is 18.42. PHCR (0.0000), R&DEXP (0.08) and GI (0.0000) all are significant but GDPPC (0.69) is insignificant. Coefficient of GDPPC ↑ 1% IUI ↑ by -0.026 % which express 0.06 S.E and 1% ↑ in GI will 2.5% ↓ in dependent IUI with 0.46 S.E. As PHCR ↑ or changes 1%, 1.80% ↓ in IUI with 0.23 S.E. Model is good fit R square 0.54 or 51% with S.E 0.64, MIDV 1.9, and AIC 2.01, SC 2.2, HQC 2.10 and DW 0.39.These results are harmonized with Roldan and Herrera (2021), Torkayesh, Ebadi and Torkayesh (2021).RFET explained by Table 5.6**.**

5.6. Redundant Fixed Effects Test

To use POLS/ FEM or REM constructs RFET in Table 5.6.

Table 5.6: TSF effects Sample: (2001- 2022)

Effects Test		Statistic	d.f.	Prob.
Cross-section F		13.073429	(8,185)	0.0000
Cross-section Chi-square		88.724083	8	0.0000
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LGDPPC	0.135321	0.079700	1.697868	0.0911
LGI	-1.298835	0.332286	-3.908792	0.0001
LPHCR	-0.803949	0.183339	-4.385049	0.0000
LR_DEXP	0.169311	0.045752	3.700619	0.0003
C	11.07589	1.069049	10.36051	0.0000

Author's calculation

In Table 5.6, both CSF and CSC-square are highly significant, in this case FEM/REM is chosen by HM test. Table 5.7 is injecting RE.

5.7. Random Effect

REM conducts for explaining HME in Table 5.7.

Table 5.7: Cross-section random effects Sample (2001- 2022)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDPPC	-0.044305	0.067325	-0.658074	0.5113
LGI	-2.073818	0.407365	-5.090805	0.0000
LPHCR	-1.489195	0.216997	-6.862751	0.0000
LR_DEXP	0.159085	0.054364	2.926306	0.0038
C	15.73015	1.384036	11.36543	0.0000
	Effects Specification		**S.D.**	**Rho**
Cross-section random			0.368691	0.2476
Idiosyncratic random			0.642710	0.7524
	Weighted Statistics			
R2d	0.389569	**MIDV**		1.255248
Adjusted R2d	0.376917	**S.D. dependent var**		0.843867
S.E. of regression	0.666111	**Sum squared resid**		85.63492
F-statistic	30.79249	**DW**		0.286706
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R2d	0.156472	**MIDV**		3.603169
Sum squared resid	140.5972	**DW**		0.174627

Author's calculation

Table 5.7 explains REM in which only GDPPC (0.511) is insignificant than GI (0.0000), R&DEXP(0.0038) and PHCR (0.0000) as whole intercept is also significant with 0.0000.Effect specification shows CSR 0.247 and IR 0.75 along with weighted R^2 0.38 F-stat 30.79 prob F-stat 0.000000 DW 0.28.Unweighted statistics states R^2 0.15 DW 0.17. HME is convinced by Table 5.8.

5.8. Correlated Random Effects - Hausman Test

CRE-HMT is explained to choose FEM/REM in Table 5.8.

Table 5.8: Test Cross-Section Random Effects Sample (2001- 2022)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	**18.310417**	**4**	**0.0011**

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LGDPPC	-0.026950	-0.044305	0.000052	0.0161
LGI	-2.598340	-2.073818	0.047333	0.0159
LPHCR	-1.801536	-1.489195	0.009676	0.0015
LR_DEXP	0.106025	0.159085	0.000830	0.0655

Author's calculation

In Table 5.8, Hausman test is applied which choice b/w FEM and REM. Cross section random effect's prob 0.0011 which is < than 0.05, can reject HN and accept alternative. So, FEM is appropriate for IUI model 3. Table 5.9 is illuminating RCSDT.

5.9. Residual Cross-Section Dependence Test

RCSD is explained to check correlation in weighted resides in Table 5.9.

Table 5.9: Dependency Test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	33.40785	36	0.5925
BP scaled LM	-1.366149		0.1719
Bias-corrected scaled LM	-1.580434		0.1140
BP CD	1.559866		0.1188

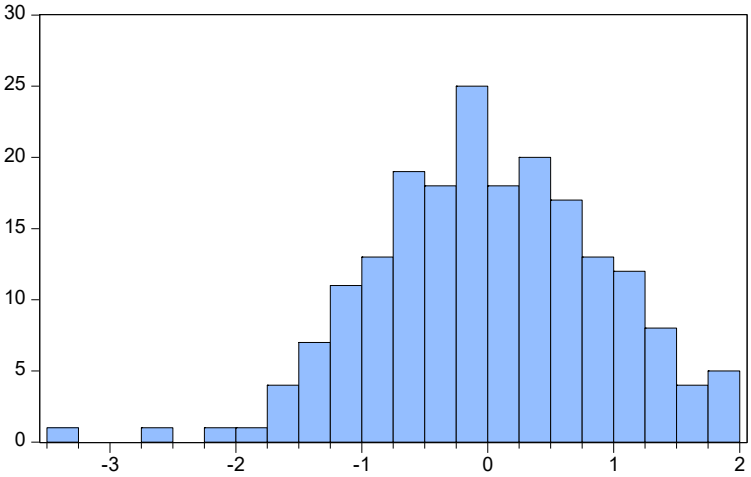
Author's calculation

In Table 5.9 expresses no CCD b/w variables and probabilities are also > 0.05 according BP test, PLM and PCD tests. NT show in Table 5.10 below.

5.10. Normality Test

The research is explored NT to check the normality in data sets in Table 5.10.

Table 5.10: Normality Test



Series: Standardized Residuals	
Sample 2001 2022	
Observations 198	
Mean	-1.23e-17
Median	-0.022924
Maximum	1.945632
Minimum	-3.305923
Std. Dev.	0.902850
Skewness	-0.249311
Kurtosis	3.240316
Jarque-Bera	2.527607
Probability	0.282577

In Table 5.10, prob is 0.28 that is > 0.05 accept HN which is normal data. So, data satisfies the normality test.

6. Conclusion and discussion

In conclusion, the investigation into Internet usage patterns among individuals in West Asia unfolds a nuanced interplay between information communication technology (ICT) diffusion, economic dynamics, and income inequalities. Spanning the years 2001 to 2022 and employing rigorous fixed and random effect models, this study sheds light on the unique context of West Asia. The positive correlation between Gross Domestic Product per capita (GDPPC) and Internet usage proxies signifies the influence of economic factors, though with variable significance across indicators. Importantly, the prominence of research and development expenditures emphasizes the pivotal role of innovation in shaping Internet adoption patterns. The implications of these findings extend beyond statistical relationships, delving into the socioeconomic fabric of West Asian societies. The observed variations in the significance of economic indicators highlight the need for tailored policy approaches to address the specific challenges and opportunities within the region. Bridging the digital divide in West Asia requires not only economic growth but also targeted investments in research and development to foster innovation and technological advancement.

In the broader discussion, the study prompts a reconsideration of conventional paradigms regarding ICT diffusion and its impact on income inequalities. The findings underscore the intricate nature of these relationships, emphasizing the need for a multidimensional approach to address the socioeconomic implications of digital transformation. As West Asia navigates the complexities of ICT integration, policymakers must consider the unique economic, cultural, and geopolitical factors that shape Internet usage patterns among individuals. This research contributes to the ongoing discourse on ICT diffusion and socioeconomic development, offering valuable insights for policymakers, researchers, and practitioners. The discussion and conclusion collectively underscore the significance of context-specific strategies to harness the full potential of ICT for inclusive development in West Asia.

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