DOES ICT SPUR POVERTY REDUCTION IN SOUTH AFRICA: AN EMPIRICAL INVESTIGATION

Mercy T. MUSAKWA[1], Nicholas M. ODHIAMBO[2]
[1,2]University of South Africa (Economics Department, College of Economic & Management Science, Pretoria, South Africa)
tsile.musa@gmail.com,
odhianm@unisa.ac.za / nmbaya99@yahoo.com

Abstract: *This study examines the asymmetric impact of ICT on poverty reduction in South Africa using the NARDL approach. The study was motivated by the simultaneous existence of high poverty levels alongside increased government support for ICT adoption as a means to leverage economic development. The main objective of this study is to examine whether ICT can be a panacea for poverty alleviation in South Africa. Using annual time-series data from 1983 to 2021, the study found that positive changes in ICT are associated with poverty reduction in both the short and long run. However, negative changes in ICT were found to have no significant impact on poverty reduction. The results were corroborated by the dynamic multiplier graph, which showed that positive ICT shocks have a stronger and more sustained impact on poverty reduction compared to negative shocks.*

Keywords: *poverty reduction; information; communication and technology (ICT), South Africa; non-linear autoregressive distributed lag (NARDL)*

JEL Classification: *I32; I38; O330*

1. Introduction

The Sustainable Development Goals (SDGs) programme and its predecessor, the Millennium Development Goals (MDGs), both spearheaded by the United Nations (UN), drive economic development in most developed and developing countries. Among the goals pursued under each of the programmes, poverty has remained on the agenda, showing a persistent challenge. South Africa is not an exception to high poverty levels among other development challenges. The National Development Plan 2030 – an economic development blueprint for South Africa - acknowledges poverty among the triple challenges. At a global level, the target of poverty alleviation was met under the MDGs; however, at a national level, the achievement was highly uneven, with some countries continuously struggling with high poverty levels (UN, 2015a). The outbreak of the COVID-19 pandemic worsened poverty levels and reversed the achievements made, threatening the achievement of the targets set under the SDGs (UN, 2025b). Under the SDGs, poverty is captured under Goal 1 - No Poverty (end poverty in all its forms everywhere). The current projections indicate that 8.9% of the global population will still be living in extreme poverty by 2030 (UN, 2025c). The contributing factors identified by the UN include unemployment, vulnerability to national disasters and social exclusion. The SDGs also support advancement in ICT, expressed in Goal 9. Although South Africa still registers high poverty levels, commendable progress has been made

in advancing ICT across all sectors of the economy. The main objective of this study, therefore, is to examine whether South Africa can harness ICT advancements to alleviate poverty and achieve the SDGs' targets.

The extant literature that covers the impact of ICT on poverty reduction largely assumes a linear relationship between the two. Given that positive and negative changes in ICT may not have the same impact on poverty reduction, this study closes the existing gap by employing an asymmetric approach to examine the nature of the relationship. The results from the study will provide policy insights that can contribute to effective policies on poverty in South Africa. Further, current studies provide mixed results, making generalization of the results inappropriate. Some studies found ICT to reduce poverty (see, for example, Zhang et al., 2024; Kakeu, Wendji, & Kouhomou, 2024; Mateko, 2024; Garcia-Mora & Mora-Rivera, 2023), some studies found ICT to worsen poverty (see (Bergantino, Mario, & Nademi, 2025; Dzator et al., 2023). Thus, the mixed results point to the importance of another study that focuses on South Africa.

South Africa has been trying to redress the imbalances of the past for over three decades after the end of apartheid, but poverty, unemployment, and inequality have remained its major challenges. These triple challenges are acknowledged in the National Development Plan 2030 as the 'triple challenge'. The outbreak of COVID-19 derailed the progress that was made generally on SDGs and particularly on poverty reduction in South Africa. The high poverty levels persist alongside notable ICT development across most sectors of the economy. The findings from this study offer new insights into effective policies that can be implemented, taking advantage of ICT development in the country. Moreover, most African countries view South Africa as a development model; findings from this study provide policy guidance not only to South Africa but also to other countries that view South Africa as a role model.

The study is divided as follows: Section 2 dwells on country-specific and empirical literature, Section 3 covers the methodology, and Section 4 outlines data analysis and discussion of results. Section 5 concludes the study.

2. Literature Review

2.1 ICT and Poverty Reduction Dynamics in South Africa

South Africa's ICT infrastructure was limited prior to 1994, monopolized by the South African Post Office and Telkom South Africa. The period was characterized by low internet penetration and technology. The Telecommunication Act of 1996 provided a framework for ICT development in South Africa. There was a gradual uptake of ICT in South Africa, with new players entering the market, such as Vodacom and MTN, as internet Service providers. The South African government realized the importance of ICT in advancing the country's economic objectives. The National Development Plan identifies ICT as a crucial component in driving socio-economic transformation in South Africa (Telecommunication and Postal Services, 2016). The National Integrated ICT Policy White Paper of 2016 covers government's approach to stakeholder participation on the drive to digital transformation; addresses issues of ICT and convergence; policies to protect open internet; mechanism to promote growth in ICT and postal industries; interventions to facilitate digital transformation of society, among other goals (Telecommunication and Postal Services, 2016).

The Independent Communication Authority of South Africa Act of 2000 established the Independent Communication Authority of South Africa (ICASA). The ICASA is responsible for regulating and licensing in the telecommunication, broadcasting, and postal industries (ICASA, 2025). The ICASA is further responsible for monitoring and compliance of broadcasting and electronic communication services, and protection of consumers and telecommunication numbering (ICASA, 2025). On postal services, ICASA has a license to monitor the South African Post Office on customer care and universal service obligation (ICASA, 2025).

South Africa has made strides in deepening ICT access, usage and closing the digital divide. The government partners with the private sector to reach underserved areas in the country. The government has established a solid framework for ICT advanced through some legislation, like the Telecommunications Act of 2000, the Electronic Communications Act of 2014, and the Promotion of Access to Information Act of 2000 (Department of Telecommunications and Postal Services, 2016).

On the poverty front, poverty alleviation has remained among the goals the UN advanced under the MDGs and the successor programme – SDGs, which indicates that poverty is not a problem for South Africa alone, but a global challenge. South Africa is a signatory to the SDGs, showing the country's commitment to poverty eradication, among other SDGs. The country's economic blueprint – the National Development Plan 2030 acknowledges poverty to be among the triple challenge.

The NDP is a strategic document that provides a framework for the implementation of the SDGs with a South African flavor. The government acknowledges inequality and unemployment to be among the challenges that the country is facing and calls for all stakeholders to join hands in the fight against poverty, inequality, and unemployment. Persistent inequality and unemployment have hindered progress in poverty alleviation, as these issues are closely interconnected.

South Africa's approach to poverty entails immediate relief to the poor through an expansive social safety net, provision of services like education and health and integration of the poor into the economic mainstream through economic empowerment programmes. South Africa has arguably a large social safety net that covers a broad range of the less privileged (World Bank, 2021). There are several grants that target different vulnerable categories in society. Some of the grants include child support, care dependency, foster care, disability, old persons, War Veterans, social COVID-19 relief of Distress and grant-in-aid (World Bank, 2021). Apart from a comprehensive social safety net, South Africa provides social services as a means of breaking a vicious cycle of poverty. There are selected schools and health services that are offered for free. The Free Basic Services expanded on free service availed to indigents, such as water, electricity, sanitation and sewerage (Statistics South Africa's StatsSA, 2025).

The third approach to poverty alleviation entails an integration of the poor into the economic mainstream through support programmes targeting the previously disadvantaged population. The programmes advanced include the Expanded Public Works Programme (EPWP), which provides temporary employment to the poor and vulnerable (Department of Public Works and Infrastructure, 2025). The programme also provides a platform for the poor and vulnerable to gain experience that is valuable in getting into formal employment. The government also took initiatives to support Small, Micro, and Medium Enterprises (SMMEs). Initiatives include availing of channels for accessing low-interest loans, business incubators and regulatory reform, which is

simplifying the registration and starting of a new business. Black Economic Empowerment (BEE) and the more encompassing Broad-Based Black Economic Empowerment (BBBEE) are initiatives taken by the government as a strategic framework to implement transformation changes in South Africa, seeking to empower previously disadvantaged individuals in South Africa (Skills Development Facilitation Corporation, 2025). The government also partners with non-governmental organizations and the private sector to support the youth. For example, the Harambee Youth Employment Accelerator works to find solutions to the youth unemployment challenge (Harambee, 2025). In South Africa, most households get income from employment, implying that unemployment positively contributes to poverty. This is implemented in conjunction with the Youth Employment Services (YES), an initiative by the government. Figure 1 reports the trends in poverty and ICT captured by fixed telephone lines in South Africa from 2000 to 2022.

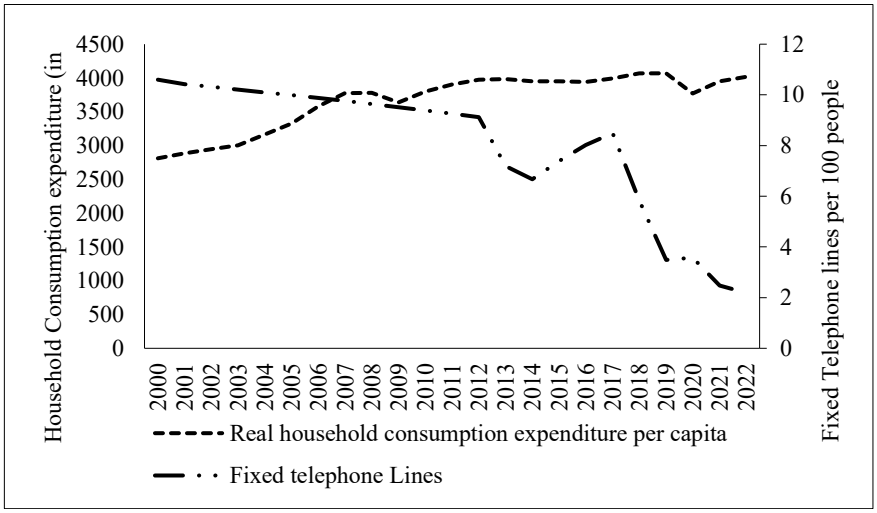


Figure 1: Trends in Household consumption expenditure per capita and fixed telephone lines 2000-2022
Source: World Bank (2025)

As indicated in Figure 1, there was a short-lived decline in fixed telephone lines that was reported between 2000 and 2014, which was followed by a surge in 2015. This gradual and short-lived decline in fixed telephone lines could be attributed to the growth in the use of mobile phones. Conversely, real household consumption expenditure steadily increased during the study period, suggesting a steady decline in poverty.

2.2 Empirical Literature Review

Poverty measures are broad, and they go beyond income and expenditure metrics to cover multidimensional aspects. According to Amartya Sen's Capability Approach (CA), poverty goes beyond the traditional measures that are biased towards income and expenditure power to emphasize individual freedom and the ability to achieve a life they

value. Capabilities relate to the freedom that individuals must achieve functions. The theory emphasizes capabilities, well-being, functioning, equality and freedom. The Capability Approach emphasizes the multidimensional measure of poverty as important in understanding poverty. Under the classical growth theory, ICT, like any other factor of production, is subject to diminishing returns. The neoclassical growth models extended the classical economic schools of thought by incorporating the role of technology as a driver of long-term growth. The theory links poverty reduction to the economic growth channel. When nations advance growth through enhancing factors of production, this is normally associated with high living standards and employment. These two factors result in poverty reduction. However, this channel works assuming equal distribution of income. In the case of South Africa, where income inequality is high, an increase in GDP may not result in poverty alleviation as limited growth filters down to the poor. Studies that found ICT to reduce poverty and those that found ICT to worsen poverty reduction are reviewed.

Zhang et al. (2024) examined the impact of the National Rural E-commerce Comprehensive Demonstration Project (NRECDP) on poverty reduction and income growth. Employing the diffidence-in-difference model using panel data from 2010 to 2020, the study found NRECDP to increase the disposable income of rural residents with a huge impact on the national level poverty-stricken counties. Kakeu, Wendji and Kouhomou (2024) studied the impact of ICT on poverty for 36 sub-Saharan African countries from 2008 to 2019. Using panel data analysis and a multidimensional poverty measure, the study found that technological innovation can reduce poverty. In the same spirit, Mateko (2024) analyzed the impact of ICT on poverty in Nigeria using data from 1992 to 2020. Using autoregressive distributed lag (ARDL), the study found ICT to reduce poverty in Nigeria. Based on the China Family Panel Studies in 2018, Zhou et al. (2024) found similar results to Kakeu, Wendji and Kouhomou (2024) and Zhang et al. (2024) in a study on the impact of digital literacy and poverty alleviation. Garcia-Mora and Mora-Rivera (2023) found that internet access contributes to poverty reduction in a sample of people living in contrasting regions across rural Mexico. Xie, Zhang and Shao (2023) examine the impact of internet use on relative poverty among farmers with different income structures in China. Using the China Family Panel Studies data and employing the Probit model, the study confirmed that internet use significantly reduces the probability of farmers slipping into relative poverty. Internet use was found to have a better effect on full-time farmers compared to part-time farmers.

In the same vein, Phan (2023) studied the impact of internet use on poverty in Vietnam using data from 2008 to 2016. The study used GMM and Propensity Score Matching. The results confirmed a positive contribution of internet use to poverty reduction. Gu et al. (2023), in a study on poor counties in China using panel data from 2012 to 2018, found ICT to contribute positively to poverty reduction. Galperin, Katz and Valencia (2022) found broadband deployment in rural areas was associated with gains in labour income and employment in a study on Ecuador using data from 2011 to 2019. Spulbar et al. (2022) investigated the impact of ICT on poverty across 35 countries using data from 2005 to 2018. Employing the GMM vector autoregressive model, the study found that an increase in ICT leads to poverty reduction. Kwilinski, Vyshnevskyi, and Dzwigol (2020) examined the relationship between ICT, poverty, and social exclusion in European Union (EU) member states. The study found EU countries with higher digitalization to have a lower percentage of the population at risk of social exclusion and

poverty. Higher digitalization was found not to provide risk reduction of poverty and social exclusion. Mbuyisa and Leonard (2016) reviewed literature on the relationship between ICT, small and medium enterprises and poverty. The literature pointed to ICT being used as a tool for poverty reduction.

Apart from studies that found ICT to reduce poverty, there is a strand of literature that found ICT to worsen poverty reduction. Bergantino, Mario and Nademi (2025), in a study on 28 European countries, using Generalized Method of Moments (GMM) and data from 2012 to 2022, found ICT to increase poverty. Similarly, Dzator et al. (2023) in a study on 44 Sub-Saharan African countries using data from 2010 to 2019 and employing the dynamic system-generalized method of moments, found that mobile and telephone penetration and ICT goods imported resulted in poverty reduction. The study also found that internet and broadband penetration and ICT goods exported resulted in an increase in poverty, regardless of age or gender.

The reviewed literature provides overwhelming evidence that ICT leads to poverty reduction. However, there is a strand of literature that points to ICT worsening poverty reduction. Moreover, the studies reviewed assumed the impact of ICT on poverty reduction is symmetric. Thus, a relook on the impact of ICT on poverty reduction using non-linear autoregressive distributed lag provides more informative policy insights.

3. Estimation Techniques

The study employed the non-linear autoregressive distributed lag (NARDL) model to examine the impact of ICT on poverty reduction in South Africa over the period from 1983 to 2021. Unlike the autoregressive distributed lag that assumes positive and negative changes in the independent variable have the same effect on the dependent variable, the NARDL allows an examination of the impact of the independent variables for both positive and negative changes. The approach provides more insight into the nature of the relation between the dependent and independent variables. In addition, the approach is beneficial to policies that are time bound, as the impact of the independent variables is captured in the short and long run time frames. The NARDL has an added advantage of allowing a mixture of variables that are integrated in levels or first order, although the approach falls away if variables are integrated of a higher order than one.

Table 1: Variable Definition

Variable Name	Variable Definition	Data Source
POV	Household consumption expenditure	World Bank https://datacatalog.worldbank.org
OPEN	[Exports plus imports]/GDP	WDI
EXR	Real Effective Exchange rate	WDI
y	Economic Growth (GDP per capita growth)	WDI
Urbpop	Urban population ratio	WDI

ICT	Fixed telephone subscriptions (per 100 people)	World Bank https://datacatalog.worldbank.org/public-licenses#cc-by

Note: WDI = World Development Indicators

Model Specification

The general model specification is given in Equation 1.

$$POV = f(\text{ICT}, \text{OPEN}, \text{EXR}, \text{y}, \text{Urbpop}) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where:

POV = poverty captured by household consumption expenditure per capita
ICT= captured by fixed telephone subscriptions per 100 people
OPEN= Trade openness
y = economic growth
EXR = Real Effective Exchange rate
Urbpop = Urbanization (% of total population)

The positive and negative decompositions of information and communication technology (ICT) in Equation 2 are presented in Equations 3 and 4, respectively.

$$ICT_t = \rho_0 + ICT_t^+ + ICT_t^- \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Where:

$$ICT_t^+ = \sum_{J=1}^{t} \Delta ICT_t^+ = \sum_{j=1}^{t} \max(\Delta ICT_j; 0) \dots\dots\dots\dots\dots\dots (3)$$

$$ICT_t^- = \sum_{J=1}^{t} \Delta ICT_t^- = \sum_{j=1}^{t} \min(\Delta ICT; 0) \dots\dots\dots\dots\dots\dots (4)$$

Based on the equations above, the NARDL model can be expressed as:

$$\begin{aligned}\Delta POV_t = \beta_0 &+ \sum_{i=1}^{p} \beta_{1i} \Delta POV_{t-i} + \sum_{i=0}^{q1} \beta_{2i}^{+} \Delta ICT_{t-i}^{+} + \sum_{i=0}^{q2} \beta_{3i}^{-} \Delta ICT_{t-i}^{-} + \sum_{i=0}^{q3} \beta_{4i} \Delta OPEN_{t-i} \\ &+ \sum_{i=0}^{q4} \beta_{5i} \Delta y + \sum_{i=0}^{q5} \beta_{6i} \Delta Urbpop_{t-i} + \sum_{i=0}^{q6} \beta_{7i} \Delta EXR_{t-i} + \vartheta_1 POV_{t-1} \\ &+ \vartheta_2^{+} ICT_{t-1}^{+} + \vartheta_3^{-} ICT_{t-1}^{-} + \vartheta_4 OPEN_{t-1} + \vartheta_5 y + \vartheta_6 Urbpop_{t-1} \\ &+ \vartheta_7 EXR_{t-1} + \mu_{1t} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (5)\end{aligned}$$

Where:

β_0 = constant; $\beta_1 - \beta_7$= short-run coefficients; $\vartheta_1 - \vartheta_7$ = long-run coefficients; and μ_{1t} = error term.

Equation 6 presents the NARDL error correction representation of Equation 5.

$$\begin{aligned}\Delta POV_t = \beta_0 &+ \sum_{i=1}^{p} \beta_{1i} \Delta POV_{t-i} + \sum_{i=0}^{q1} \beta_{2i}^{+} \Delta ICT_{t-i}^{+} + \sum_{i=0}^{q2} \beta_{3i}^{-} \Delta ICT_{t-i}^{-} + \sum_{i=0}^{q3} \beta_{4i} \Delta OPEN_{t-i} \\ &+ \sum_{i=0}^{q4} \beta_{5i} \Delta y + \sum_{i=0}^{q5} \beta_{6i} \Delta Urbpop_{t-i} + \sum_{i=0}^{q6} \beta_{7i} \Delta EXR_{t-i} \\ &+ \lambda ECM_{t-1} \dots\dots\dots\dots\dots\dots (6)\end{aligned}$$

Where:

ECM = Error correction term.

4. Empirical Results

Before proceeding with the NARDL analysis, Dickey-Fuller Generalized Least Squares (DF-GLS) and Phillips-Perron (PP) stationarity tests were conducted to determine the stationarity of the variables included in the model. The stationarity test results are presented in Table 1.

Table 2: Unit root test results

	Dickey-Fuller Generalized Least Square (DF-GLS)		Phillips-Perron (PP)	
Variable	Level	∆	Level	∆
POV	-0.1020	-3.9330**	-1.6225	-4.8032***
ICT	-1.0902	-5.0444***	1.0792	-4.1752***
OPEN	-1.7583	-5.0103***	-0.2517	-6.8409***
y	-1.8684	-4.4558***	-0.7441	-4.5636***
Urbpop	-9.4186***	-	-2.1036	-6.5146***
EXR	-1.7782	-5.6623***	-7.3039***	-

*Notes: *, ** and *** denote statistical significance at 10%, 5% and 1% levels, respectively.*
∆ denotes first difference.

Results reported in Table 2 confirmed that all the variables in the model are stationary in levels or first difference. The next step is to establish if the variables have a long-run relationship. Cointegration results are presented in Table 3.

Table 3: Cointegration Results

Dependent variable	**F-Statistic**				**Cointegration Status**	
POV	4.213063 ***				Cointegrated	
Asymptotic critical values						
	10%		5%		1%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
	2.254	3.388	2.685	3.960	3.713	5.326

*Notes: *, ** and *** denote statistical significance at 10%, 5% and 1% levels*

To determine long-run relationships, the calculated F-statistics is compared to the critical values also presented in the table at 1%, 5% and 10% level of significance. If the F-statistic is above the upper bound, cointegration is confirmed, and if the calculated F-statistic is below the lower bound, no long-run relationship is determined; however, if the F-statistic falls between the lower bound and the upper bound, the results are inconclusive. The F-statistic of 4.213063 falls above the upper bound critical value of 3,960 at 5% level of significance, confirming the presence of a long-term relationship among the variables in the model. Before proceeding with the analysis, a short-run and long-run asymmetry test was conducted to confirm if ICT has a non-linear relationship with poverty reduction. The results are reported in Table 4. The results confirmed the

presence of long and short run asymmetry.

Table 4: Long and short-run asymmetric test results

Test	F-statistic	P-value	Decision
W_{LR}	3.799681*	0.0662	Asymmetric
W_{SR}	6.996841**	0.0160	Asymmetric

*1) *, ** and *** denote statistical significance at 10%, 5% and 1% levels, respectively*
2) = long-run asymmetric test
3) = short-run asymmetric test

The presence of long-run and short-run asymmetry in the model allows for the analysis of the impact of ICT on poverty reduction using the NARDL approach. The NARDL results are presented in Table 5.

Table 5: NARDL results

Dependent Variable is DPOV		
Panel A: Long-Run Results		
Regressor	**Coefficient**	**T-ratio [p-value]**
ICT^+	38.32756*	1.717566 [0.0955]
ICT^-	5.543705	0.650287[0.5201]
$OPEN$	1.885301	0.309458[0.7590]
y	0.594800***	7.853707 [0.0000]
$Urbpop$	43.42222***	3.425369 [0.0017]
EXR	5.986109***	2.743981[0.0099]
C	-3650.141***	-5.065710[0.0000]
Panel B: Short-Run Results		
Regressor	**Coefficient**	**T-ratio [p-value]**
ΔICT^+	61.15070**	2.515510 [0.0184]
$\Delta ICT^+(-1)$	-28.66801	-1.187237 [0.2459]
ΔICT^-	-4.818704	-0.626160 [0.5367]
$\Delta ICT^-(-1)$	-3.234638	-0.381010 [0.7063]
$\Delta OPEN$	4.387127**	2.598865 [0.0152]

$\Delta OPEN(-1)$	-0.021719	-0.012554 [0.9901]
ΔY	0.574993***	12.58040 [0.0000]
$\Delta Y(-1)$	-0.021570	-0.542906 [0.5918]
$\Delta Urbpop$	185.6252	1.265559[0.2169]
$\Delta Urbpop(-1)$	268.4678	1.652443 [0.1105]
ΔEXR	2.890272***	4.496442 [0.0001]
ΔEXR(-1)	-1.540036*	-1.959835 [0.0608]
$ECM(-1)$	-0.811718***	-6.7791315 [0.0000]
Panel C: Test statistics and diagnostics		
R- Squared	0.959805	
R-Bar-Squared	0.941254	
F-statistics [Prob]	51.73748 [0.000000]	

1) **, ** and *** denote statistical significance at 10%, 5% and 1% levels, respectively*
2) *(+) and (-) denote positive and negative shocks, respectively.*

The results presented in Table 5, Panel A and Panel B, confirm that positive changes in ICT are positively associated with poverty reduction in both the long run and the short run. This was confirmed by the coefficients of $ICT^{+}$and ΔICT^{+}, which are positive and statistically significant at the 10% and 5% levels, respectively. Negative changes in ICT were, however, found to have no significant impact on poverty reduction. This was confirmed by the coefficient of ICT^{-}, which was found to be insignificant in the short run and in the long run. The dynamic multiplier graph also confirms that positive shocks in ICT have a more profound and lasting effect on poverty reduction compared to negative shocks.

Other results presented in Table 5 confirmed that: i) Trade openness (OPEN) has a positive impact on poverty reduction only in the short run. The results point to the positive contribution that trade brings to the poor through channels like the availability of a variety and quality goods at a lower price. ii) Economic growth (y) has a significant and positive impact on poverty reduction in South Africa in both the short run and the long run. Economic growth is associated with job creation and the availability of more resources to the government to expand the outreach programmes targeting the poor. iii) Urban population (Urbpop) was found to have a positive impact on poverty reduction only in the long run. iv) Real effective exchange rate (EXR) was found to have a positive impact on poverty reduction in the long run, while in the short run, the results are inconclusive.

The variables included in the model explain 96% of the variability in poverty reduction. The error correction term (ECM) of -0.811718 was found to have the expected negative

sign and was significant at 1%. This implies that the model is convergent: whenever there is a disequilibrium in the economy, the model always converges to the equilibrium at a speed of 81% percent annually. Figure 2 captures the dynamic multiplier graph, and Figure 3 reports the cumulative sum and cumulative sum of square (CUSUM and CUSUMQ). The CUSUM and CUSUMQ confirmed that the model is stable at 5% level of significance.

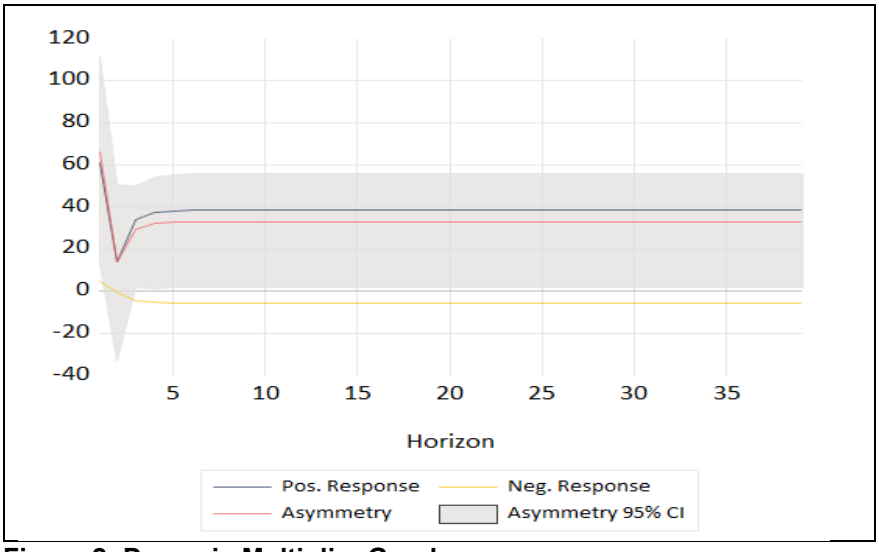
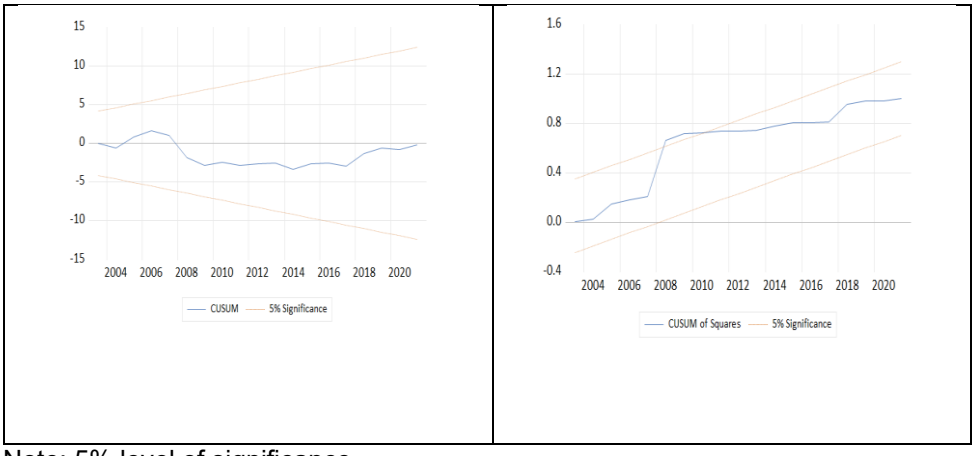


Figure 2: Dynamic Multiplier Graph



Note: 5% level of significance

Figure 3: CUSUM and CUSUMQ

5. Conclusion

This study investigated the asymmetric impact of ICT on poverty reduction in South Africa, using data from 1983 to 2021 and a non-linear ARDL approach. The

simultaneous occurrence of high poverty levels and notable advancement in ICT in South Africa motivated this study to establish whether South Africa can harness ICT to alleviate poverty. Poverty reduction was captured by household consumption expenditure, while ICT was measured by fixed telephone lines per 100 people. The findings from the study confirmed that positive changes in ICT are positively associated with poverty reduction in both the long run and the short run. Negative changes in ICT were, however, found to have no significant impact on poverty reduction. The dynamic multiplier graph confirmed that positive changes in ICT have a more profound and lasting impact on poverty reduction compared to the negative changes. We can, therefore, conclude that ICT has a beneficial impact on poverty reduction in South Africa. Based on the findings, South Africa is encouraged to continue to provide the requisite legislative framework necessary to support fair and competitive participation in the ICT sector. Further, South Africa is encouraged to continue pursuing private partnerships to accelerate ICT access in underserved areas, especially rural areas. Awareness campaigns are also suggested to build awareness on ICT options available and their affordability, benefits, and how ICT can be used to alleviate poverty among South Africans.

Although steps have been taken to ensure the scientific rigor of this study, a few limitations can be pointed out. Firstly, poverty is multidimensional; the current study used income poverty. Future studies can benefit from the use of other poverty measures. Secondly, ICT is broad; fixed telephone lines per 100 people were used as a measure of ICT. Future studies can use other measures of ICT, which may provide another view on the nature of the link between ICT and poverty reduction. Lastly, the study period for this study was restricted due to data availability; as new data become available, future studies can benefit from an expanded data set.

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