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Industrialization, Household Consumption Expenditure, and Poverty Dynamics in Uganda: An Empirical ARDL Investigation

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Abstract: This paper addresses the relationship between industrial development and poverty reduction in Uganda, with HCE representing an index of the welfare improvement. ARDL estimations are used in analyzing the relationship between the change in poverty, determined by industrial output, industrial employment, agricultural development, population growth, FDI, domestic investment and industrial policy. Long-run findings suggest industrial output, industrial policy and domestic investment contribute to poverty reduction by increasing household consumption. However, while the former is significant, the latter two contribute with positive, though low, effects. There is a positive correlation coefficient for population growth which could possibly represent the demographic dividend. A strong positive relation between agriculture development and household consumption could not be established; however, this suggests that the welfare gains from agriculture are not distributed inclusively. FDI and industrial employment fail to become statistically significant in the long-run. In the short run, dynamics are fast in reaching long-run equilibrium, where about 79% is readjusted in a period. In this sense, it appears that industrial output, industrial employment, population growth and domestic investment are significantly contributing positively toward poverty alleviation. The influence of FDI and industrial policy are not statistically significant. Generally, industrialization, domestic investment and industrial policy have significant welfare improving roles while agriculture may not sufficiently integrate into industrial processes of poverty alleviation. With this information, the policy environment should focus more on efficient industrial policy implementation, encourage labour-intensive industrialization and increasing agriculture inclusiveness as well as raising domestic investment.

Keywords: *Industrialization, Poverty Reduction, Household Consumption Expenditure, ARDL Model, Economic Growth*

1. Introduction

Industrialization continues to be one of the most potent engines of structural transformation within the context of developing economies, impacting production systems, job creation, income distribution, and in the long run, household welfare. In Uganda, it has been increasingly promoted as a central pillar of national development policies such as Vision 2040 and the National Development Plan III, emphasizing value addition, the expansion of the manufacturing sector and agro-industrial development, as pathways towards sustained economic development and enhanced household welfare (Olwor, 2023). In spite of such policy imperatives, the economy of Uganda is characterized largely by a dominant informal sector and a relatively weak manufacturing base, thereby raising interesting questions on how industrial development has translated to households' welfare through consumption spending.

Household consumption expenditure can be widely considered an indispensable proxy of economic welfare, since it is reflective of households' capacities to procure their basic necessities (Ministry of Statistics and Programme Implementation, 2024). The operational definition of Household consumption expenditure per capita used in this study is total household spending on consumption goods and services divided by the size of household members, deflated by inflation to convert it into real terms. It serves as a dynamic and continuous measure of household welfare beyond the binary measure of poverty. It is considered a better indicator of household welfare compared to income within the context of developing countries because it is relatively less volatile, likely captures a households' permanent income more appropriately, and it also includes goods produced within the household, which play a substantial role in subsistence economies (Deaton,

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1997; World Bank, 2022). In Uganda, the Uganda National Household Survey (UBOS, 2024) provides detailed data on the household consumption of food and non-food items which then serves to estimate poverty headcount ratio and the distribution of consumption expenditure across the population (UBOS, 2020; UBOS, 2024; Ravallion, 2016; UNDP, 2023). Similarly, within the Ugandan economy household consumption makes up over 60 percent of GDP on average over the last several years (UNDP, 2023), and therefore plays an important role in its economy and in shaping domestic demand (TheGlobalEconomy.com, 2025). Available evidence suggests that household consumption continues to drive the Ugandan economy, fueled by rising incomes, enhanced agricultural output, and gradual expansion of industrial production activities (World Bank, 2025). However, while there seems to be positive developments in household consumption, the actual distribution and quality of consumption seems unequal between urban and rural areas (UBOS, 2024), and between different levels of income (UBOS, 2024).

Industrialization is theorized to influence households' consumption expenditure in Uganda in various ways (World Bank, 2025). Firstly, it is expected to expand employment opportunities, thereby raising incomes and consumption purchasing power (International Labour Organization [ILO], 2023). Secondly, increased productivity, resulting in high returns for labor, would stimulate demand for commodities and services (UNIDO, 2024). Thirdly, it would help expand domestically produced goods that reduce households' dependence on imported items, thus leading to a potential reduction in prices faced by consumers (World Bank, 2025). Uganda has prioritized agro-industrialization and manufacturing-led growth as key policy measures aimed at uplifting income levels and reducing poverty, thus uplifting household consumption patterns (Olwor, 2023).

Evidence suggests that household income is a significant determinant of households' consumption expenditure in Uganda as both farm and non-farm income increases are strongly correlated with increased household spending levels (Kituyi, 2023). This confirms that any structural changes which enhance income-generating opportunities, such as industrialization, should have a direct impact on consumption patterns. Recent reports indicate that household consumption has played a critical role in contributing to Uganda's GDP growth, along with investment and government spending (World Bank, 2025). However, there are ongoing concerns regarding the inclusivity of industrial growth within Uganda's economy. The limited size of the industrial sector and its concentration within urban centers have resulted in weak spillover effects to rural households, which make up majority of the population. Moreover, the predominantly informal sector and low skills intensity labor would mean that income growth resulting from industrialization is not necessarily sustainable across all households. Consequently, increased consumption expenditure might not necessarily reflect increases in productive capacities and thus quality. With these considerations in mind, analysis of how industrialization has affected households' consumption expenditure in Uganda is timely and relevant. This will provide an indication of whether industrial growth has indeed translated into welfare gains for Ugandan households and highlight some policy gaps to be addressed.

2. Literature Review

The literature draws on Nelson's (1956) theory of the Low-Level Equilibrium Trap to provide an explanation for why many developing economies find themselves stuck in persistent poverty and poor structural transformation. The theory asserts that poor countries are trapped in vicious circles of low income, low savings, low investment, and low productivity (Deaton, 1997), which prevent sustainable rise of income and well-being for the households. At very low-income level, households are just able to cater for their subsistence consumption needs. There are no or very little savings left and thus low savings, and as such a consequence of low investment is also there, which means low productivity growth and low economic growth. In this manner, low income economies remain trapped in a subsistence economy equilibrium whereby any small increase in income are spent on subsistence consumption, and therefore population growth and subsistence consumption keep eating up income increases.According to Nelson (1956) one can get out of the low level equilibrium trap by the creation of technological progress/ a large external shock or by deliberate policy interventions that simultaneously enhance savings and productivity.

The applicability of this theory in Uganda is evident given the present economic composition of Uganda where a high proportion of the labor force are absorbed into subsistence agriculture and low productivity informal activities that cause low incomes and poor consumption power of households. Approximately one third of Ugandan labor force is still employed in subsistence agriculture and 40% of the working population or self-employed workforce are still operating in climate dependent and low productivity agriculture. The study notes that although much progress was made between the 1990s and early 2000s, some development has regressed, and currently one third of the labor force is still in subsistence agriculture and 40% of the working population or self-employed are still employed in low productivity climate dependent agriculture (Twinoburyo, 2025). The Uganda Ministry of Finance, Planning and Economic Development (MFPED), reported that Agriculture is employing about 70% of the labor force and it is still the main livelihood activity of 75% of young person’s 15-24 years of age (MFPED, 2026). Due to the type of employment, growth in earnings is weak, and this limit the growth of consumption above a bare level, therefore sustaining the Low Level Equilibrium Trap theory described by Nelson (1956).

This predicament is compounded by the relatively high rate of unemployment among youth which is about 41 percent where only 3.2 per cent of youth is working in formal wage employment (Kimwanzi, 2025). This suggests that there is poor absorption of labor into high productivity sectors such as manufacturing and services. The ever increasing work force is increasingly absorbed into low-productivity informal jobs which lack the potential to generate adequate surplus for saving and investment, and thus Weakens the links between industrialization and household well-being and specifically

consumption expenditure. Theoretically, industrialization is expected to improve household consumption expenditure through job creation, rising incomes and increase productivity; however, Uganda's industrial growth has not yet achieved scale and inclusiveness sufficient to improve household consumption expenditure. The productivity gains appear confined to a narrow range of urban sectors and many households remain excluded from formal high income jobs. This analysis therefore leads one to adopt the Low-Level Equilibrium Trap Theory by Nelson (1956) to explain why industrialization in Uganda has not adequately improved household consumption expenditure through increase in productivity; structural constraints, such as low productivity, poor savings, low investment and high population growth limit welfare gains from ongoing industrial development.

Empirical Review

The empirical literature on industrial development and poverty reduction presents a diverse and heavily disputed set of findings, drawing upon developing economies from Africa, Latin America, and Asia. It is from this corpus of knowledge that the study by Omitogun et al. (2023) on Nigeria serves as an initial reference point. These authors found that while manufacturing value added and human capital development are negatively correlated, they are statistically insignificant. Furthermore, the researchers also found that industrial value added did not Granger-cause human development, and after utilizing FMOLS and causality testing between 1990 and 2021, they concluded that Nigeria's industrial sector is structurally weak and cannot reduce poverty in any significant way. The findings supported darker vein of the literature, in which industrial growth can occur in developing nations without raising welfare because low productivity, weak linkage and weak institutions cannot make possible for such growth to generate benefits (see below). Similarly, Sutikno and Sri (2017) report for Indonesia's Gresik industrial zone that industrialization had not significantly influence the welfare of the community in general, which may imply that only the local community and part of it benefited from such industrial development. On similar grounds, Olasode et al. (2022) found that although Nigeria had been growing economically for two decades, poverty levels were still high, a problem compounded by inequality, corruption, and jobless growth, suggesting again that industrial development cannot result in poverty reduction unless it is inclusive.

In contrast to this pessimistic evidence are findings on powerful poverty-reducing mechanisms triggered by industrial development via structural change and job creation. Using causal mediation analysis, Karahasan (2023) discovered that about 50% of the poverty-reducing impact of economic growth works through industrialization (specifically, manufacturing employment). This is to say that growth alone is not enough; for the effect of growth on poverty to be high, industrial structural change must occur alongside it. This is well confirmed by Erumban and De Vries (2021), who in 42 developing countries showed structural change and labor productivity in manufacturing as primary drivers of poverty reduction, primarily in Asia and SSA. Evidence from country-level studies supports this argument even more strongly. In Ethiopia, Yimam et al. (2024) show industrial employment to be a poverty-reducer in the long term, although industrial value added may be poverty-reinforcing in some instances, highlighting employment intensity relative to composition. Adu et al. (2019) found industrial output to be negatively related to unemployment in Nigeria, reiterating the role of industrial expansion as a labor absorber. Lin et al. (2022) showed that industrial poverty reduction strategy implemented by SOEs in China significantly boost the regional economy growth especially when used in conjunction with digital innovation. These diverse examples attest to the impact of industrialization when it is labor-intensive, technology-supported, and regionally developed with structural considerations. Third and more dominant stream: conditionality. Studies in this group consider industrialization to beneither inherently poor-biased or not, depending upon institutions, governance, sectorial composition, and innovation. Lin et al. (2022) identify digital innovation to be an important moderating variable to promote the poor-reducing impact of industry. Similarly, He et al. (2024) shows that the poor-alleviating effect of industrial upgrading and diversification prompted by China's poverty alleviation policy is undermined by poor adaptation to the local endowments, resulting in decline over time in diversification levels.

Focusing on Sub-Saharan Africa, Enongene (2024) confirms a positive effect of agriculture, manufacturing, industry, and services on poverty alleviation, with agriculture being the strongest driver. This refutes traditional linear industrial-led development, suggesting instead a broader structural perspective. Similarly, Yimam and Shumetie (2026) find industrialization to positively affect real per capita GDP in Ethiopia, although at a diminishing rate with inflation and population growth, again hinting at the operation of the macroeconomic environment. Extending this conditional argument, a recent strand of the literature integrates technology, finance and globalization into structural studies. Zameer et al. (2020) found technological innovation and financial development to have a significant poverty alleviation effect in China, though globalization alone did not play a role. Similarly, in Sub-Saharan Africa Anetor et al. (2020) found FDI and foreign aid to lack a significant poverty reducing impact unless adequately directed, though trade was still a relevant channel. WhileDo et al. (2021) found FDI to lead to a reduction of poverty in Vietnam directly and indirectly through human capital accumulation, a negative impact on poverty via trade mechanisms also existed.

Broader theoretical insights frommacro-structural studies such as Erumban and De Vries (2021) and Delgado et al. (2024) support a strong correlation between structural change, productivity increase and poverty reduction. Delgado et al. (2024) show that emerging economies convergence much faster in terms of productivity and are making much faster progress in meeting SDG 1, 8 and 9 than developed economies, suggesting that it is this industrial upgrading in developing countries that drives global poverty convergence. A vital component of the above studies includes the role of agriculture and the rural sector in the operation of industrialization to reduce poverty. Warr and Suphannachart (2021) indeed showed the effectiveness of agricultural productivity growth in poverty

reduction in rural Thailand, however not significantly stronger than non-agricultural income growth. Similarly, Goletti (1999) argues that agriculture and rural industrialization should drive the poverty reduction process in low income agrarian economies where urban employment capacities were limited, supported by Kimura and Chang (2017) where labour movement from agriculture to industry within global value chains were key to East Asian poverty reduction.

A final important aspect of the literature surrounds policy design and targeting mechanisms. Etuk and Ayuk (2021) showed that agricultural development projects in Nigeria improved beneficiary welfare, but they did not always reduce overall poverty due to poor targeting. In Uganda Benin et al. (2008) argued that to promote agricultural-led growth substantial commitment of fiscal resources and sector diversification was needed. In China Pan et al. (2023) and Litif et al. (2023) provide further evidence that poverty reduction by industrialization relies on institution coordination, particularly through hybrid organizations and international cooperation. In summary, the empirical evidence does not support an unqualified claim that industrialization leads to poverty reduction; several studies (Karahasan, 2023; Lin et al., 2022; Erumban & De Vries, 2021) have provided robust evidence of the role of structural transformation and job creation in poverty reduction, while others (Omitogun et al., 2023; Sutikno & Sri, 2017) report insignificant results in contexts characterized by weak institutions and structural rigidities. The remaining set of studies (Zameer et al., 2020; Anetor et al., 2020; He et al., 2024) report strong conditional relationships, where institutional quality, innovation and balance in other economic sectors is necessary for industrialization to generate poverty reducing effects.

3. Methodology

3.1 Sources of Data and Description.

Secondary data used were from world Bank data base and, Uganda Bureau of Statistics (UBOS); hence reliable and consistent across sources. Household consumption expenditure (HCE) is employed as dependent variable measuring poverty levels. It shows the portion of the population that lives under the $3.00 per day line. The explanatory variables show the extent of structural and sectoral transformation. The independent variables used show the trends in both industrial and sectoral activities; this is measured by industrial sector growth (INDQ) and Industrial employment (INEM) measured as proportion of employment, used as an indicator of industrial job creation capacity and absorption power. Agriculture sector development (AGRD), proxied by agricultural value added, is used to include the role of agriculture in poverty reduction and for comparison purpose. Other control variables are total population (POP), foreign direct investment (FDI) and domestic investment (DINV), capturing labor and investment effects respectively on poverty outcome. In addition, industrial policy dummy (POL), defined over the period post-2008 reform, is added to include the effect of structural policy change on industrial sector and poverty dynamics.

3.2 Model Specification

This paper is a modified version of the model of Nguea et al. (2020). Their initial research provides a relationship between, FDI and poverty reduction in Cameroon with the ARDL-Bounds Testing Approach. In Uganda, the cost of a basket of food to cover a minimal standard of living, determined by the Uganda Bureau of Statistics (UBOS), determines the poverty line for the entire nation. In this case the poverty headcount ratio, measured as per UBOS, 2020; UBOS, 2024, is collected from the Uganda National Household Survey. It should be acknowledged that in developing countries a researchers' reliance is often on poverty headcount ratio, as well as consumption, rather than income when considering welfare (Deaton, 1997; World Bank, 2022). With these definitions, this paper modifies the Nguea et al. Model by treating poverty reduction as two separate objectives and relating these two variables, the poverty headcount ratio and major industrialization variables in Uganda.

$$Pov_t = f(INDQ_t, INEM_t, AGRD_t, POP_t, FDI_t, DIV_t, IPOL_t) \quad \text{eq 1}$$

Were Pov is poverty reduction, INDQ is industrial sector growth, INEM is industrial sector employment, AGRD is agricultural sector development, EMPG is employment growth, FDI is foreign direct investment, DIV is domestic investment and IPOL is industrial policy.

Conceptualized poverty to capture house hold consumption expenditure (HCE), hence:

$$HCE_t = f(INDQ_t, INEM_t, AGRD_t, POP_t, FDI_t, DIV_t, IPOL_t) \quad \text{eq 2}$$

Where HCE is house hold consumption expenditure. Other variables were as defined in equation 2.

The functional form in equation 2 is further specified in econometric form:

$$HCE_t = \beta_0 + \beta_1 INDQ_t + \beta_2 INEM_t + \beta_3 AGRD_t + \beta_4 POP_t + \beta_5 FDI_t + \beta_6 DIV_t + \beta_7 IPOL_t + \varepsilon_t \quad \text{eq 3}$$

ε_t is the error term, while t present the period 1990 to 2024. The error term is assumed to be normally distributed, absence of serial correlation and heteroscedasticity. The data of the variables in equation 7 and 8 were transformed in log-log Model. This is to allow for elasticity

$$LnHCE_t = \alpha_0 + \alpha_1 LnINDQ_t + \alpha_2 LnINEM_t + \alpha_3 LnAGRD_t + \alpha_4 LnPOP_t + \alpha_5 LnFDI_t + \alpha_6 LnDIV_t + \alpha_7 IPOL_t + \varepsilon_t \quad \text{eq 4}$$

In order to further investigate the impact of industrialization on poverty reduction in Uganda, this study adopted the Autoregressive Distributed Lag (ARDL) framework introduced by Pesaran *et al.* (2001). The ARDL form of equation 4 is specified thus:

$$LnHCE_t = \beta_0 + LnHCE_{t-1} + \beta_1 LnINDQ_t + \beta_2 LnINEM_t + \beta_3 LnAGRD_t + \beta_4 LnEMPG_t + \beta_5 LnFDI_t + \beta_6 LnDIV_t + \beta_7 IPOL_t + \varepsilon_t \quad \text{eq 5}$$

The ARDL estimation process using Eviews 13 simultaneously estimate both long-run and short-run model. Therefore, the short-run and long-run form of equation 5 is given as:

$$LnHCE_t = \beta_0 + \beta_1 LnHCE_{t-1} + \beta_2 LnINDQ_t + \beta_3 LnINEM_t + \beta_4 LnAGRD_t + \beta_5 LnPOP_t + \beta_6 LnFDI_t + \beta_7 LnDIV_t + \beta_8 IPOL_t + \varphi_1 \sum_{i=1}^{k} \Delta LnHCE_{t-i} + \varphi_2 \sum_{i=1}^{k} \Delta LnINDQ_{t-i} + \varphi_3 \sum_{i=1}^{k} \Delta LnINEM_{t-i} + \varphi_4 \sum_{i=1}^{k} \Delta LnAGRD_{t-i} + \varphi_5 \sum_{i=1}^{k} \Delta LnPOP_{t-i} + \varphi_6 \sum_{i=1}^{k} \Delta LnFDI_{t-i} + \varphi_7 \sum_{i=1}^{k} \Delta LnDIV_{t-i} + \varphi_8 \sum_{i=1}^{k} \Delta IPOL_{t-i} + \gamma ect_{t-1} + \varepsilon_t \quad \text{eq 6}$$

Ect_{-1} is the error correction term. The estimated coefficient is expected to be negative, statistically significant, and lie between 0 and -1. The coefficients of ect_{-1} measure how quickly the model adjusts back to its long run equilibrium. Thus the model in equation 6 would be estimated using the ARDL estimation techniques. In this paper the ARDL technique was selected in Accordance with Pesaran et al. (2001) this ARDL approach can be used irrespective of the orders of integration (I(0), I(1) or cointegrated) of independent variables (Gkmenolu & Taspinar, 2016; Katircioglu, 2009, 2010).

4. Result and Discussion

4.1 Unit Root Test

Table 1. Unit Root Test

Variable	PP at Level	Critical Value @ 5%	Prob	PP at 1st Diff	Critical values	Prob	Order of Integration
lnHCE	-4.639	-2.951	0.004	-	-	-	I(0)
LnINDQ	-3.438	-2.951	0.016	-	-	-	I(0)
LnINEM	-0.452	-2.951	0.889	-4.121	-2.954	0.003	I(1)
LnAGRD	-0.302	-2.951	0.975	-5.781	-2.954	0.000	I(1)
LnPOP	-0.243	-2.951	0.923	-4.015	-2.954	0.018	I(1)
lnFDI	-4.617	-2.954	0.001	-	-	-	I(0)
LnDIV	-3.373	-2951	0.019	-	-	-	I(0)
IPOL	-0.941	-2.951	0.762	-5.745	-	-	I(1)

Source: Researcher's computation using Eviews 13, 2026

The unit root test results based on PP test confirm different orders of integration among the variables and make it appropriate to run an ARDL model. Specifically LnPHR, lnHCE, LnINDQ, lnFDI and LnDIV are has no unit root at level because their respective test statistics were larger in magnitude negative than the 5% critical value and their probability values less than 0.05 thus rejecting the null hypothesis of a unit root. LnINEM, LnAGRD, LnPOP, IPOL are stationary after first differencing thus confirming the order of I(1) and I(0) series.

4.2 Lag Selection Criteria

Table 2. Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	189.824	NA	1.60	-11.364	-10.998	-11.243
1	510.662	461.205	1.94	-27.416	-24.118	-26.323
2	629.658	111.559*	1.45*	-30.854*	-24.624*	-28.789*

Source: Researcher's computation using Eviews 13, 2026

The statistics associated with the various selection criterion (from lags 0 to 2) LogL, sequentially modified LR test statistic, FPE, AIC, SC, and HQ are shown in table 2. For our analysis, it is important to take into consideration that LR test suggests statistical justification to choose lag 2 and FPE, AIC and HQ all confirm lag 2 is appropriate. It is argued that researcher can use lag 2. Thus researcher uses lag 2. Hence lag 2 is justified in empirical testing of ARDL estimation, bounds testing for cointegration and to generate short-run and long-run results.

4.3 Test for Multicollinearity

Table 3. Variance Inflation factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
HCE	0.005	1.441	1.293
INDQ	7.22E-05	1.209	1.209
INEM	1.07E-05	1.674	1.674
AGRD	0.000106	1.494	1.482
POP	8.32E-05	1.184	1.173
FDI	8.32E-05	1.184	1.173
DIV	8.32E-05	1.184	1.173
IPOL	0.000138	1.954	1.934
C	8.21E-05	2.242	NA

Source: Author's computation using Eviews 13, 2026

The results show the centered VIF (Variance Inflation Factor) statistics, they show that there is no multicollinearity among the regressors influencing Household Consumption Expenditure (HCE) because all the centered VIF statistics are less than 5 (range from 1.173 to 1.934). The most valuable is IPOL, with the VIF of 1.934, and the centered VIF of the constant (2.242) are meaningless. Thus, the coefficient estimates, standard errors and p-values from the ARDL model are valid and unbiased.

4.4 ARDL Estimation

Table 4. ARDL Bounds Test

Test Statistic	Value
F-statistic	9.145817

	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
30	2.277	3.498	2.730	4.163	3.864	5.694
35	2.196	3.370	2.597	3.907	3.599	5.230
Asymptotic	1.920	2.890	2.170	3.210	2.730	3.900

Source: Author's computation using Eviews 13, 2026

The ARDL Bounds test result in Table 4 shows that the F-statistics of 9.146 is greater than the upper bound at 5% level. The confirm the existence of a long-run equilibrium relationship between variables. Hence, the need for the ARDL long-run and short-run estimation.

Table 5 ARDL Long-Run Result

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
LNINDQ(-1)	0.257	0.068	3.797	0.000
LNINEM(-1)	0.034	0.048	0.710	0.485
LNAGRD	-0.617	0.155	-3.977	0.000
LNPOP(-1)	0.743	0.198	3.762	0.001
LNFDI	0.000	0.008	0.112	0.912
LNDIV(-1)	0.149	0.032	4.694	0.000
IPOL(-1)	0.102	0.031	3.270	0.003
C	14.128	2.011	7.0247	0.000

Source: Researcher's Computation using Eviews, 13, 2026

The evidence based on the centered VIF statistics clearly rejects the existence of multicollinearity between the dependent variable of HCE and the independent variables. The calculated centered VIF values (varying between 1.173 and 1.934) are substantially less than the cut off value of 5. With the largest being IPOL's with the value of 1.934 (the uncentered VIF for constant, 2.242, should not be concerned about), all the estimated coefficients and their respective standard errors and p-values from ARDL will be valid and unbiased.

Table 6. ARDL Short Run Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.790	0.157	-5.021	0.000
D(LNHCE(-1))	0.614	0.117	5.234	0.000
D(LNINDQ(-1))	-0.266	0.072	-3.692	0.001
D(LNINEM(-1))	-0.170	0.053	-3.202	0.004
D(LNPOP)	-12.714	2.324	-5.471	0.000
D(LNFDI)	0.002	0.014	0.112	0.912
D(LNDIV)	-0.163	0.028	-5.913	0.000
D(IPOL)	-0.007	0.020	-0.348	0.731
R-squared	0.911	F-statistic		-0.010
Adjusted R-squared	0.871	Prob(F-statistic)		0.000
		Durbin-Watson stat		2.059

Source: Researcher's computation using Eviews 13, 2026

Short-run ARDL results as given in table 6 provides much important insight on adjustment speed of household consumption expenditure (indicator of poverty reduction) of Uganda. The error correction term (ECT) shows a negative significant coefficient (-0.790; p=0.000) as expected, thus establishing existence of a long run equilibrium, also as almost 79 percent of deviations are corrected within one period the adjustment process is very quick and the long run relationship remains stable. Past growth of consumption (D(LNHCE(-1))) is positive and significant (0.614), representing household habits. Growth in industrial output in previous period (D(LNINDQ(-1))) negatively impacts current consumption (-0.266) and hence indicates poverty reduction in Uganda with lags, but the effect is unlike the non-significant long run relationship, where the current change in industrial output impacts positively. Current growth in industrial employment (D(LNINEM(-1))) shows a negative and highly significant coefficient (-0.170) that means welfare gains are observed immediately through wages, income effect of higher employment, and also the coefficient is significant, which is unlike in long run analysis. Change in population growth (D(LNPOP)) gives a large negative and significant coefficient (-12.714) that means short-run population growth enhances the consumption of households likely due to increase in demand or labor supply effects. FDI (D(LNFDI)) shows positive impact but it is not significant which is in line with long-run finding, and thus indicates slow transmission effects. Domestic investment (D(LNDIV)) shows significant and positive impact (-0.163) which indicates that higher investment has short-run poverty reduction effect. Industrial policy has a negative impact in short run but it is not significant which implies a deferred effect on welfare. R and Adjusted R values indicate a good fit for the regression (R=0.911, Adjusted R=0.871) and overall significance F-statistic shows p=0.000. There is no autocorrelation in the model (Durbin-Watson = 2.059). The most dominant and significant variables are industrial output, industrial employment, population growth and domestic investment that have a positive and significant impact on household consumption as proxy for poverty reduction in Uganda in the short-run.

4.5 Model Diagnostic Test

Table 7: Diagnostics Test Result

Diagnostic Test	Test Statistic	Prob.
Normality Test		
Jarque-Bera	1.46	0.482
Serial Correlation LM Test		
F-Statistic	2.121	0.163
Heteroskedasticity Test		
F-Statistic	0.486	0.925

Source: Researcher's computation using Eviews 13, 2026

The diagnostic tests in Table 7 confirm that the ARDL model for household consumption expenditure is well-specified and reliable. The Jarque-Bera test (probability 0.482) shows that the residuals are normally distributed, meaning the statistical tests for coefficients are valid. The serial correlation LM test (probability 0.163) indicates no autocorrelation among residuals, so standard errors are not biased. The heteroskedasticity test (probability 0.925) shows that the residuals have constant variance (homoskedasticity). Since all probability values are well above the 0.05 significance level, none of the null hypotheses can be rejected. Overall, the model

satisfies all key assumptions, and therefore the long-run and short-run estimates can be trusted.

4.6 Stability Test

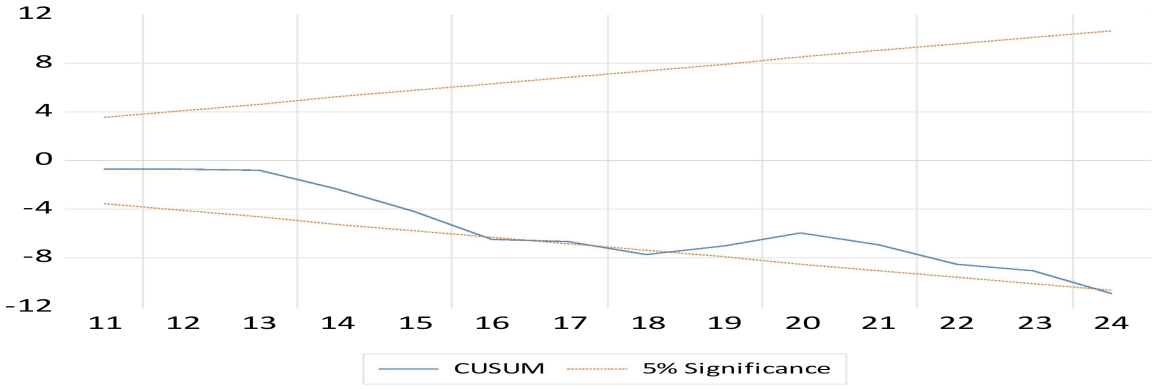
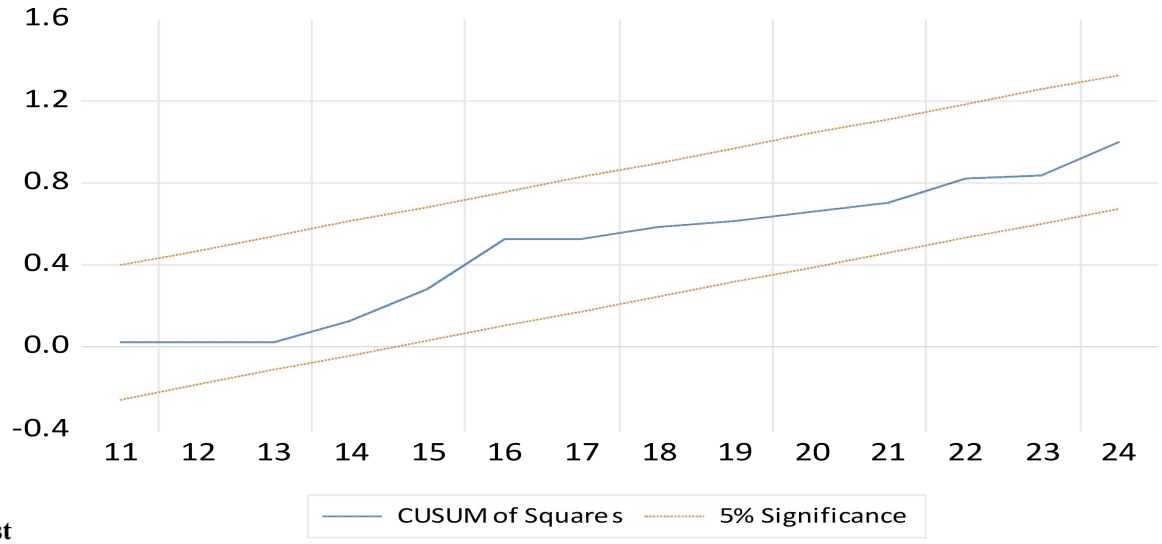


Figure 1: CUSUM



Test

Figure 2: CUSUM of Squares Test

Both tests lie within the 5% confidence bounds for the CUSUM test (Figure 1) and CUSUMSQ test (Figure 2); this indicates that the ARDL model estimate for Ugandan household consumption expenditure is stable. The CUSUM test implies that there are no systematic parameter drifts over time, the estimate of the coefficient for each variable in the long run equation (e.g., effects of industrial output, employment, etc) are stationary, The CUSUMSQ test confirms stable residual variance (no structural breaks) even with inclusion of the dummies variable representing the industrial policy. So by combining these two tests we can confirm that short run dynamics, error correction term and adjustment speed are not sample specific. Therefore, the model ARDL is well specified and robust and is policy relevant.

5. Conclusion and Recommendations

The study investigated the role of industrial sector development in poverty reduction in Uganda by using household consumption expenditure as a proxy for poverty reduction. The major finding revealed that industrial output and domestic investment can reduce poverty both in the short run and in the long run; while industrial policy can reduce poverty only in the long run and industrial employment can reduce poverty only in the short run (this could be explained by the fact that most industrial jobs were low-wage, low-quality ones). Surprisingly, population growth leads to poverty reduction possibly through demographic dividend and the long-run effect of agricultural development is negative for consumption which imply that poor may not fully benefit from agricultural growth and the welfare benefit from the expansion of agricultural sector is not transmitted to the poor well. FDI seems to have no statistically significant relationship on poverty reduction. The error correction model estimates a rapid adjustment of 79% to equilibrium, meaning that household welfare react rapidly on economic shocks.

Based on these findings, the study makes the following policy recommendations:

To the Ministry of Trade, Industry and Cooperatives: Accelerate the National Industrial policy 2020, focusing on labor-intensive industries (e.g., food processing, textile, construction materials) and direct the FDI to those projects that create forward and backward linkages with local economy and jobs but not capital-intensive enclaves.

To the Ministry of Agriculture, Animal Industry and Fisheries: reform extension services to support smallholder farmers rather than just commercial investors; Scale up credit facilities for smallholder farmers and strengthen the market linkage for agro-processed products.

To the Ministry of Finance, Planning and Economic Development: Provide fiscal incentives such as tax credits and loans through the UDB for the labor intensive industrial sector; Scale up the INVITE Fund from current USD 210 million and allocate more funds for the loans to domestic firms; Cooperate with Bank of Uganda to reduce the interest rates on industrial loans.

To the Ministry of Gender, Labour and Social Development: expand the training programs under UWEP and YLP for youth and unskilled labor; strengthen the labor market information system; enforce the minimum wage laws in industrial centers.

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