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The Asymmetric Effect of Exchange Rate on the Household Consumption Expenditures

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Abstract

Previous literature on the exchange rate and household consumption failed to examine the effect of positive and negative changes in the exchange rate on household consumption expenditures. We extended the available literature by investigating the asymmetric impacts in African emerging economies (AEE). To attain this aim, we utilized the nonlinear ARDL model, which covers both negative and positive shocks in the exchange rate. Our results indicate that movements in the exchange rate have asymmetric impacts on household consumption in all the included emerging economies, excluding Nigeria. Our findings propose recommendations for the policymakers to ensure the alignment of the optimal exchange rate for countries of emerging African economies and propose relevant policies for the countries.

Keywords:
asymmetric bounds test; household consumption; exchange rate; African emerging economies

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INTRODUCTION

Investors, governments, and macroeconomists take much interest in acknowledging the main factors that determine aggregate consumption. This concept is particularly significant since consumption indicates the economy's vibrancy and is the essential constituent of aggregate demand (Bahmani-Oskooee et al., 2015). Additionally, it is the best instrument for stimulating the economy in recession periods (Okwu et al., 2020). In history, the "psychological law of consumption" by Keynes is the initial effort for the examination of the consumption function's components, which is most popularly recognized as the "absolute income hypothesis" (Keynes, 1936). Keynes's hypothesis states that there is a tendency among people to upsurge their levels of consumption in reaction to the rise in their salary or income. PIH (Permanent Income Hypothesis) presented by Friedman (1957) and LCH (Life-Cycle Hypothesis), stated by Ando & Modigliani (1963), is the other hypotheses on consumption functions. Their studies also noted that the base of these hypotheses is on the postulation that customers or consumers always try to get the maximum level of their satisfaction through the smoothness of their consumption concerning their accessible income over time. Keeping in view the up-to-date economies regarding openness and globalization, Alexander (1952) presented the exchange rate as the main module of the function of household consumption. He described a dependency of the exchange rate's effects on the HC on inflationary trends resulting from the devaluation of local currency and this pass over on the imported raw materials. He further stated that there are negative impacts of the devaluation of local currency on aggregate consumption. Its tendencies of inflation can deteriorate the power of purchasing local currency. Mumtaz and Ali (2020) supported the opinion of Alexander (1952) that because of the degree of openness and globalization, there is a direct effect of the exchange rate on the local prices through variations in imported raw material prices and other related consumables.

In response to the hypothesis by Alexander (1952), different research works have been performed to explore the underlying impacts of exchange rate changes on household consumption. Among these research works, Bahmani-Oskooee & Xi (2012) investigated the effects of exchange rates on household consumption in Japan. Their results show that there are only short-run impacts of exchange rate on consumption. Bahmani-Oskooee et al. (2015) extended the study Bahmani-Oskooee & Xi (2012) to twelve emerging economies. They found that uncertainty of the exchange rate has an essential short-run effect on consumption among all investigated countries, whereas in the long run, the impact was present in only six countries.

Moreover, Oseni (2016) conducted a study based on the dynamic framework GMM and found that the Exchange rate (ER) has negative impact on household consumption (HC) in countries of SSA (Sub-Saharan Africa). In another associated research study, Iyke and Ho (2018) affirmed after considering both short-run and long run that ER has negative impacts on HC in Ghana. However, Mumtaz & Ali (2020) concluded that domestic consumptions are more susceptible to the variations of the exchange rate in India than in Pakistan.

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The current literature in this field has shifted its consideration to investigate the nonlinear association between consumption expenditure and exchange rate. Pavlidis et al. (2015) used linear and nonlinear granger-causality tests to investigate the association between consumption and ER in fourteen different OECD countries. The findings of their study are contradictory to the internationally acknowledged model of the business cycle, which envisages the association between HC and ER. Okwu et al., (2020) also discovered positive impacts of appreciation and depreciation in the exchange rate on household consumption in Nigeria in the long run while applying the nonlinear ARDL model. However, they could not provide information about the impacts of extreme changes in the exchange rate on domestic consumption.

Although a bulk of literature is available about examining the association between the expenditure of domestic consumption and exchange rate, the comparative adjustments of the expenditure of domestic consumption to positive and negative changes in the exchange rates are not known. The available literature commences an adjustment in the expenditure pattern of households at the same proportions as the appreciation and depreciation in the exchange rate. We can say that the available research works do not consider the impacts of positive and negative shocks in the exchange rate on household consumption. Verheyen (2013) suggested that some moments of inaction are present where exporters are not able to react to the variations in the exchange rate because households can't regulate their consumption in a reaction against minor deviations in the exchange rate. On the contrary, there is the presence of some moments of action where there is a significant reaction of households to exchange rate changes. Such conditions show a significant change in household expenditures due to large movements in ER.

We extend the available works based on the above-mentioned arguments. We investigate the different responses of the expenditure of HC to positive and negative changes in the ER. This research study was required because there were mixed outcomes of already available literature. For instance, Mumtaz & Ali (2020) and Okwu et al. (2020) reported a positive association, while Iyke & Ho (2018) and Oseni (2016) stressed the presence of a negative association between domestic consumption expenditure and exchange rate. The probable reason for these contradictory results is that majority of the conducted research studies presumed that there are linear associations among the provided variables. Therefore, this research work is conducted to cover the existing gap in the available literature in this field. This current research study improves the available literature in this field by utilizing an asymmetric ARDL model

Considering common features of African Emerging Economies, this research work pays attention to these countries, including Nigeria, Kenya, Algeria, Morocco, South Africa, and Egypt. The selected six AEE for this current research study is amongst the initial ten economies of Africa with increasing levels of consumption. Due to modernization in business milieus and changes in demographics, HC in these countries is to touch $3.50 trillion at the end of 2030. There is further estimation that African counties will be the resident place for 1/5th population by the next ten years. AEE is the steadiest developing consumer economy in the world, according to the results of a study

conducted by Iheonu & Nwachukwu (2020). They also stated that levels of household consumption of AEE at a very rapid rate compared to their gross domestic product. They also highlighted that, since 2010, the expenditure of household consumption of AEE raised by 4.70% compound annually. It consequently extended to $2.40 trillion by 2015.

Furthermore, there is a high dependency of AEE on imports, and these countries mostly prefer to consume foreign-made goods compared to the consumption of their local products. Therefore, the foreign exchange markets of these countries remain much volatile, and this same factor hurts consumption. Therefore, we have faith that the household consumption expenditure in these countries is highly vulnerable to appreciation and depreciation of exchange rates compared to the other developed or emerging economies of the world. Based on these assumptions, we mainly emphasize the effect of deviations of ER on the expenditures of HC in AEE.

This current research study improves the available information in this field in two separate ways. First, we present the asymmetric ARDL to examine the effect of positive and negative shocks in the exchange rate on household consumption expenditures. Second, this research study extends the current works of Okwu et al., (2020) and Iheonu & Nwachukwu (2020) in the context of African emerging countries' economies. We believe that conducting a study in these economies will provide important policy implications for the relevant stakeholders.

The outcome shows that changes in the exchange rate asymmetrically affect household consumption excluding Nigeria, as consolidated by the Wald test. This information infers significant differences between currency devaluation and appreciation effects on the HC. Additionally, there is an increased sensitivity of household consumption in Morocco, Algeria, and Egypt to an exchange rate appreciation compared to the minor appreciation.

We organized the remaining portion of the study as follows. Section-2 contains the description of methodology and data, Section-3 comprises the statistical analysis of the collected information, and the conclusion is presented in Section-4 of this research study with few policy implications.

METHODS

To provide robust empirical information, we utilized the quarterly time series data covering a span from 1980Q1 to 2019Q4. There were one hundred and sixty observations. Using econometric specifications and rules of thumb, we know that this number is suitable for reliable interpretations. The data series for the income (GDP; Gross Domestic Product) and expenditure of household consumption were available in annual frequencies. We converted these annual frequencies to the quarterly frequencies using the quadratic match sum method of processing. This procedure of quadratic match sum processing is a valuable method that can convert the data sets of low frequencies into a series of high frequencies, and it permits amendments due to deviations based on seasons by dropping the end-to-end dispersions (Uche & Nwamiri 2020; Shahbaz et al.

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(2018); Sharif et al. (2020). We obtained the series from two different data hosts. We accessed the data about the national income (GDP) and household consumption from AfDB (African Development Bank), and we obtained the data about the exchange rate from the International Financial Statistics (IFS). Amongst these included three variables, the variable HC expenditure (measured in US dollars) is the dependent variable, whereas the ER variable is explanatory and normally measured as actual ER. We measured ER so that there is an implication of appreciation with positive shocks and depreciation with adverse shocks of local currency. NI (national income measured by GDP in US dollars) is being utilized as a control variable in this research study. This research is similar to many past studies that also considered the NI an essential factor in household consumption function (Bahmani-Oskooee & Nayeri, 2020; Iyke & Ho, 2019).

Analysis in this research study is grounded on the traditional method of ARDL presented by Pesaran & Shin (1999) and some of its successive adaptations, such as asymmetric ARDL proposed by Shin et al. (2014). The primary purpose of using this model was to uncover the related threshold, which gives the most desired impact. Keeping in view the research works of Okwu et al., (2020), and Iheonu & Nwachukwu (2020), for empirical estimations, we present the following standard econometric specification:

$$\mathrm{lnHCkt} = \mathrm{f(lnERkt,\ lnNIkt,)} \quad (1)$$

In this econometric specification, lnNI, lnHC, and lnER denote the logarithmic values of HC expenditure, a dependent variable, GDP (Gross Domestic Product), presented by NI in economy k at time t, and ER indicates the exchange rate for economy k at time t. There is the use of specification-1 for the formation of econometric specification, having a term for stochastic error presented in the second specification.

$$\mathrm{lnHCkt} = \mathrm{b0} + \mathrm{b1lnERkt} + \mathrm{b2lnNIkt} + \varepsilon_t \quad (2)$$

We defined all the variables earlier with their associated coefficients. The stochastic factor is ε_t which also looks after the other linked factors excluded in this technique/ model. Proceeding further with the following research studies of Anjum (2017), Chang (2018), Chang & Rajput (2018), and Bhutto & Chang (2019), we presented the ARDL (Linear Autoregressive Distributed Lag) from the above-mentioned specification (Equation-2) as;

$$ln\Delta\gamma_t = \beta_0 + ln\beta_1\gamma_{t-1} + ln\beta_2 x_{t-1} + \sum_{i=1}^{n}\theta_1 ln\Delta\gamma_{t-i} + \sum_{i=0}^{n}\theta_2 ln\Delta x_{t-i} + \varepsilon_t \quad (3)$$

In the above-mentioned equation,

γt = Dependent variable

x_t = Independent variable

Δ = Difference operator is

lnI = Natural logarithm notation

εt = Stochastic term

$\sum_{i=1}^{n}\varphi_i ln\Delta\gamma_{t-i}$ = Dynamics of short-run

$\beta_1\gamma_{t-1}$ Shows the equilibrium relationship for the long run.

The typical ARDL model is Equation-3 and we modified this equation with our included variables to practice equation-4 as presented below;

$$\Delta lnHC_{kt} = \beta_0 + \beta_1 lnHC_{kt-1} + \beta_2 lnER_{kt-1} + \beta_3 lnNI_{kt-1} + \sum_{i=1}^{i} \theta_1 \Delta lnHC_{kt-i} + \sum_{i=0}^{n} \theta_2 \Delta lnER_{kt-i} + \sum_{i=0}^{n} \theta_3 \Delta lnNI_{kt-i} + \varepsilon_t \quad (4)$$

Moving forward, we presented the specifications of the long run of non-linear ARDL, NARDL by Shin et al. (2014) as follows;

$$lnHC_{kt} = \beta_0 + \beta_1 lnER_{kt}^{+} + \beta_2 lnER_{kt}^{-} + \beta_3 lnNI_{kt} + \varepsilon_t \quad (5)$$

In this equation, $lnER_t^{+}$ & $lnER_t^{-}$ are the partial sums of positive and negative impacts of the exchange rate on the expenditure of household consumption (HC) with an inclusion of the control variable NI (National Income). The following equations denote the partial sums of positive as well as negative variations as demonstrated by Shin et al. (2014):

$$lnER_{kt}^{+} = \sum_{i=1}^{t} \Delta lnER_{kt}^{+} = \sum_{i=1}^{t} \max(\Delta LnER_i, 0) \quad (6a)$$

And

$$lnER_{kt}^{-} = \sum_{i=1}^{t} \Delta lnER_{kt}^{-} = \sum_{i=1}^{t} \min(\Delta LnER_i, 0) \quad (6b)$$

In these equations $lnER_{kt} = lnER_0 + lnER_{kt}^{+} lnER_{kt}^{-}$

According to the specifications mentioned above, positive and negative long-run coefficients of partial differential sums in ER and HC are given as β_1 and β_2, respectively. In contrast, the coefficient for the dependent variable is β_0, the coefficient for the NI is β_3 used as a control variable. We also formed the long-run equation number 7 in the setting of the NARDL model presented by Shin et al. (2014) for empirical estimation as mentioned.

$$\Delta lnHC_{kt} = \beta_0 + \beta_1 lnHC_{kt-1} + \beta_2 lnER_{kt-1}^{+} + \beta_3 lnER_{kt-1}^{-} + \beta_4 lnNI_{kt-1} + \sum_{i=1}^{n1} \theta_1 \Delta lnHC_{kt-i} + \sum_{i=0}^{n} (\theta_2^{+} \Delta lnER_{kt-i}^{+} + \theta_3^{-} \Delta lnER_{kt-i}^{-}) + \sum_{i=0}^{n} \theta_4 \Delta lnNI_{kt-i} + \varepsilon_t \quad (7)$$

RESULT AND DISCUSSION

We correspondingly present the descriptive statistics and residual time series trend in Table 1 & Figure 1. Jarque-Bera statistics stated that all studied variables have deviated from normality among all recruited countries. This test also shows the time-varying association between the expenditure of HC and extreme variations of ER in all recruited

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emerging economies. Therefore, it justifies the utilization of this particular model that can disclose more thoroughly the time-varying status of developments. The average highest average household consumption was 11.084 in South Africa, 9.002 in Kenya, 8.462 in Nigeria, 8.537 in Egypt, 9.686 in Morocco, whereas 8.080 was the least expenditure of household consumption in Algeria. There was high volatility of the exchange rate in all the selected economies, with the Naira local currency of Nigeria having the most volatility of 2.00, followed by 1.20 volatility of Algeria Dina and 1.00 volatility of Egypt Dina.

Additionally, there was negative skewness in the exchange rates in all these selected economies. Furthermore, all the selected countries with all studied variables were leptokurtic. Consequently, the trend series also states the data set's time-varying nature of all the recruited emerging economies. These series of trends further show that, though there is a difference between deviations in the expenditure of household consumptions and ER from one country to another, there is a single common factor that states that there is noticeable instability in all these selected countries.

Table 1. Descriptive Statistics

Variables	Average	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
Algeria					
HC	8.080	0.343	0.414	1.744	18.077***
ER	3.096	2.201	-0.640	1.750	25.600***
NI	7.907	0.695	0.406	1.442	22.703***
Egypt					
HC	8.537	0.991	0.263	2.704	12.053***
ER	-0.286	2.005	-0.251	3.086	8.317**
NI	12.052	0.630	0.049	3.087	6.376*
Kenya					
HC	9.002	0.876	0.330	2.6535	17.267***
ER	3.335	0.675	-0.780	3.337	26.124***
NI	9.372	0.663	0.617	2.882	23.771***
Morocco					
HC	9.686	0.767	0.022	2.661	12.050***
ER	0.647	0.201	-3.123	10.657	39.360***
NI	10.164	0.838	-0.021	2.610	12.800***
Nigeria					
HC	8.462	3.245	0.305	2.443	22.747***
ER	3.002	4.057	-0.614	3.161	20.715***
NI	8.846	2.205	0.230	2.491	20.299***
South Africa					
HC	11.084	0.521	-0.031	2.784	8.850***
ER	0.267	0.613	-0.415	3.365	12.071***
NI	12.630	0.493	0.072	2.655	13.134***

Note: This very table displays the descriptive statistics of all included variables for each recruited country. We got descriptive statistics before getting the logarithmic values of all these considered variables. ***, **, * shows that the variables are not usually distributed, instigating the rebuke of the null hypothesis of normality at 1.0%, 5.0%, and 10.0% levels f significance correspondingly.

There is a requirement for the ARDL model presented by Pesaran et al. (2001) that no variable should be integrated into order two I(2). Integrating the variables in either order one I(1) or I(0) is compulsory. So, we analyzed the integration order of these variables with the utilization of root tests of the Perron, Augmented Dickey-Fuller, and Lee Strazicich. Table-2 presents the complete summary of the results of unit-root tests. The results of unit root tests show that there was mutual integration of our variables between order-zero I(0) and order-one I(1). In simple words, we can say that some variables were integrated of order zero I(0), whereas others were integrated of order order-one I(1). Since there was conformation of the standard requirements with the results of unit-root tests, we move further with some other empirical assessments using models nonlinear ARDL model. For the utilization of these two models, we select optimal lag length four (4) based on AIC (Akaike Information Criterion) and HIC (Hannan-Quinn Information Criterion). Furthermore, we use the step-wise procedure from general to specific to reach parsimonious results after applying this model.

Figure 1. Plots of Time Series of ER and HC in African Emerging Economies

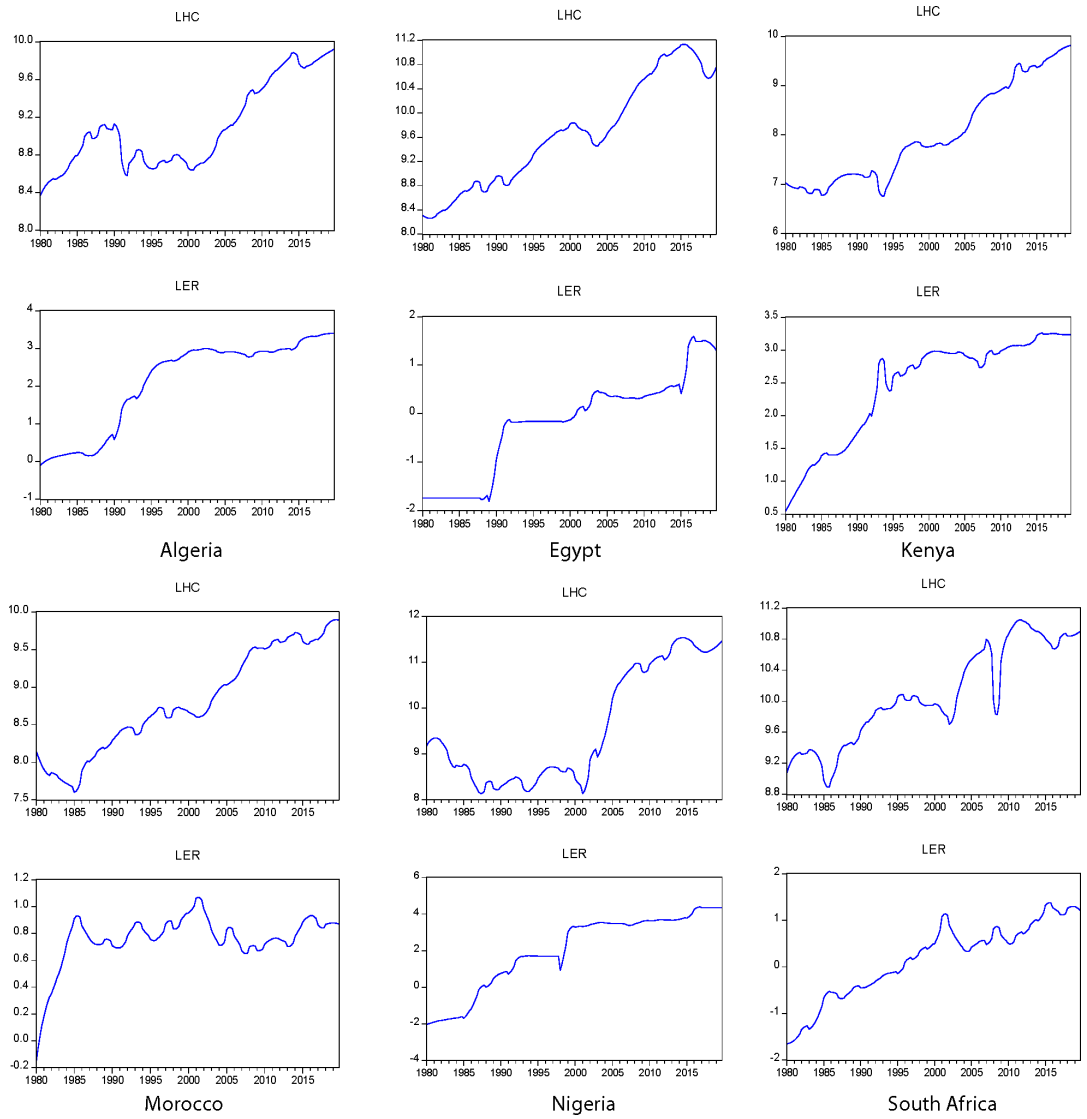

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Table 2. Unit Root Tests

Variables	ADF (Level)	ADF I(1)	L-Z (Level)	Break year	L-Z I(1)	Break year	Perron (Level)	Break year	Perron I(1)	Break year
Algeria										
HC	-0.712	-5.742[a]	-3.088	1991Q-1	-5.687[a]	1984Q-3	-3.650	1990Q-1	-8.441[a]	1991Q-1
ER	-2.562	-4.908[a]	-2.480	1989Q-4	-4.150[a]	1986Q-4	-6.027[a]	1990Q-1	-7.524[a]	1991Q-1
NI	-0.705	-5.608[a]	-2.991	2009Q-2	-5.641[a]	1985Q-3	-2.714	2003Q-2	-6.547[a]	1991Q-1
Egypt										
HC	-0.842	-4.272[a]	-1.861	2013Q-1	-2.431[b]	1999Q-4	-2.640	2006Q-1	-5.116[a]	2003Q-1
ER	-1.033	-5.112[a]	-2.328[b]	1989Q-3	-3.903[a]	1989Q-1	-5.177[a]	1981Q-1	-5.711[a]	1990Q-1
NI	-1.528	-3.677[a]	-3.414[a]	1991Q-2	-2.543[b]	1989Q-3	-3.718	1989Q-1	-6.252[a]	1991Q-1
Kenya										
HC	0.206	-5.535[a]	-1.240	1994Q-1	-5.775[a]	1985Q-1	-3.025	2005Q-1	-8.018[a]	1993Q-1
ER	-1.411	-6.571[a]	-1.046	1994Q-1	-5.750[a]	2007Q-2	-3.164	1991Q-1	-11.67[a]	1993Q-1
NI	0.603	-5.637[a]	-1.562	2013Q-1	-5.954[a]	1982Q-2	-2.608	2005Q-1	-7.770[a]	1993Q-1
Morocco										
HC	-0.174	-5.223[a]	-1.622	1986Q-1	-3.937[a]	1984Q-4	-2.812	1996Q-1	-6.381[a]	1986Q-1
ER	-3.003[a]	-4.486[a]	-1.511	1986Q-1	-2.640[b]	1985Q-3	-4.168[c]	2001Q-1	-5.218[a]	1986Q-1
NI	-0.166	-5.246[a]	-1.642	1986Q-1	-3.971[a]	1984Q-4	-3.006	2013Q-4	-6.065[a]	1986Q-1
Nigeria										
HC	-0.122	-5.828[a]	-2.088	2002Q-1	-5.703[a]	1984Q-1	-5.329[b]	2003Q-1	-7.042[a]	2002Q-1
ER	-1.755	-8.281[a]	-1.913	1998Q-2	-8.551[a]	1983Q-3	-3.132	1986Q-2	-10.79[a]	1998Q-1
NI	-0.314	-5.432[a]	-2.090	1995Q-1	-5.465[a]	1984Q-2	-4.155	2003Q-1	-6.688[a]	1983Q-1
South Africa										
HC	-0.487	-8.234[a]	-5.387[a]	2009Q-1	-5.755[a]	2009Q-2	-3.712	2008Q-1	-8.578[a]	2008Q-1
ER	-1.008	-7.531[a]	-4.758[b]	2002Q-1	-5.821[a]	1985Q-3	-3.783	2001Q-1	-6.982[a]	2001Q-1
NI	-0.871	-6.576[a]	-4.473[b]	2003Q-1	-4.590[a]	1983Q-4	-3.996[c]	2002Q-1	-5.390[a]	2002Q-1

Note: This table summarizes the results of unit root tests of ADF, Perron, and Lee Z statistics of all included variables in the recruited countries of OPEC. Superscripts a, b & c shows unit root's rejection at 1.0%, 5.0% and 10.0% levels of significance respectively.

Subsequently, we utilize the nonlinear ARDL model to assess the long and short-run asymmetric association between the expenditure of household consumption and variations in the exchange rate in African emerging economies. Table-3 presents the bounds test results for the nonlinear ARDL model. The bounds test for co-integration in both variables shows that expenditure on household consumption shares a long-run association with the movements of the exchange rate. We conclude these results since the measured values of F-statistics for these models are much higher than the upper bounds I(1) critical value even at a 99% significance level.

Table-3: Bounds test for nonlinear ARDL model

	Algeria	Egypt	Kenya	Morocco	Nigeria	South Africa
F-Statistics	3.21*	3.82**	9.73***	4.40**	6.32***	8.56***

This table summarizes the bounds test results of the nonlinear ARDL model of expenditure of HC and ER in African emerging countries.. ***, ** and * show the rejection of the null hypothesis of no co-integration at 1.0%, 5.0%, and 10.0% levels of significance.

Table 4 presents the detailed summary of the estimation of standard NARDL presented in equation 4. These studied estimations show that considering both the short and long run, NI, a control variable, positively influences the HC in all the selected emerging economies, excluding Algeria. This finding favors the Keynesian proposition that there is a positive impact of income on the patterns of household consumption. Considering the effects of deviations in ER on the household consumption for AEE, the projected findings state that depreciation and appreciations in exchange rates exert significant negative impacts on consumption for the long and short-run in Algeria. These findings are supported by Chang et al. (2019a), Chang et al. (2019b), Javid & Tehranchian (2018), Arman & Simon (2002), and Chang et al. (2018)

Table 4. Estimates from Nonlinear ARDL Model

	Algeria	Egypt	Kenya	Morocco	Nigeria	South Africa
Panel-A: Long-run coefficients						
ER^+	-0.017**	0.008	0.005	-0.010**	0.003	0.015
ER^-	-0.157**	0.002	-0.067***	0.001	0.031	0.040
NI	-0.010	0.022***	0.096***	0.067***	0.106***	0.226***
Panel-B: Short-run coefficients						
ΔER^+	-0.902***	-	-0.350***	-0.203**	0.039	-0.445***
ΔER^+ (-1)	0.428***	-	0.217***	-	-	0.224
ΔER^+ (-2)	-	-	-	-0.021	-	-
ΔER^-	-0.386***	-	-0.180*	-	0.038	-0.523**
ΔER^-(-1)	-	-	0.228***	0.068	-	0.399
ΔER^-(-2)	-0.070	-	0.091*	0.059	-0.051	-
ΔNI	0.026	0.513***	0.712***	0.899***	0.701***	0.356***
Panel-C: Diagnostics tests						
LM	2.01	2.10	4.22**	0.00	2.09	1.21
Hect	1.21	2.44	3.21	0.05	1.30	0.31
R-Reset	4.10	0.80	2.19	0.89	1.16	2.23
Adj. r^2	0.69	0.81	0.82	0.92	0.66	0.49
Ect	-0.81***	-0.22**	-0.49***	-0.42***	-0.49***	-0.40***
CUSUM	U	-	S	S	S	S
CUSUMSQ	U	-	U	S	U	U
$Wald_{LR}$	4.61**	4.03*	16.23***	3.66*	0.69	1.18
$Wald_{SR}$	81.0***	-	14.31***	2.01	0.49	5.80***

This table provides the summary of the results of the standard NARDL model regarding the impacts of ER on the expenditure of HC in African emerging countries accordingly. ***, ** and * show that the null hypothesis is denunciated at 1.0%, 5.0%, and 10.0% levels of significance. Panels-A and Panel-B provide long and short-run estimations correspondingly, whereas Panel-C characterizes the post-estimation tests for diagnosis. Long and short-run asymmetric tests are $Wald_{LR}$ & $Wald_{SR}$ correspondingly.

In contrast, in the case of South Africa, we found a negative influence in only the short-run, which these are inconsistent with the findings of Chien et al. (2020) and Hashmi et al. (2021). On the contrary, there was an insignificant positive influence of

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depreciation and appreciations in exchange rates on household consumption in Nigeria and Egypt. Appreciation in the exchange rate has a negligible positive effect on household consumption in Kenya. In contrast, there is a negative impact of depreciation in the long run, while there was inconsistency for short-run effects for both depreciation and appreciations. There is a significant negative impact of appreciation in the exchange rate on consumption in Morocco, whereas depreciation has no significant impact in both the short and long run. Diagnostic tests (Panel-C), comprising heteroscedasticity, serial correlation, and stability tests, confirm the reliable nature of these estimations. However, the LM test shows otherwise for Kenya. In addition, there is a fall in the CUSUM graph with 5.0% grid lines for all the selected countries except Egypt and Algeria. In contrast, there is instability in the CUSUMQ graph in all recruited countries except Egypt and Morocco. Various previous studies also found inconsistent findings such as Hashmi & Chang (2021), Hasan et al. (2021), Kollmann (2021).

CONCLUSION

This research is conducted to cover the gap by investigating the impacts of positive and negative shocks in the exchange rate on household consumption expenditure in AEE. We performed this research study because the available literature in this field was unsuccessful in distinguishing the effects of positive variations in the exchange rate from the negative changes in the exchange rate on consumption expenditures. Therefore, this research work provides vital data about the association between these studied variables. It also helps the shareholders implement applicable and proper policies or change their existing policies with flaws.

Empirical assessments grounded on bound tests or co-integration tests reveal that the exchange rate, household expenditure, and national income, a control variable, share a common tendency in the long run. The assessments conducted by the NARDL model show that the exchange rate has a disproportionate impact on the expenditure of domestic consumption in the short-run in South Africa, Kenya, and Algeria. It is the responsibility of the policymakers to make sure the stability of the exchange rate to achieve an encouraging economic environment and reduce the negative impacts of business cycles in Morocco, Egypt, and Algeria. Policymakers should formulate such policies, which will have the capability to prevent the volatility of the exchange rate. Keeping in view the high degree of vulnerability and openness of South Africa, Kenya, and Nigeria, the policies that will discourage reliance on fully, and inclination or preference for products of foreign regions against locally fabricated products are pragmatic. It is important to mention that HC remains constant unabatedly in mentioned countries during the periods of depreciation in the ER rates. These types of policies can raise the level of productivity and can produce the required opportunities for employment in the workforce. There can be a replication of this research work in other countries.

Our estimates further indicate that increase in the exchange rate has a different effect from a decrease in the exchange rate on household consumption expenditures.

Therefore, devising the same policies across an increase and decrease in the exchange rate may lead to unfavorable consequences. For example, the long-run estimates indicate that increase in the exchange rate in Kenya does not significantly affect household consumption expenditures whereas a decrease in the exchange rate significantly affects household consumption expenditures. Therefore, the government in Kenya may take policy measures during decreasing states of their local currency since the increase in the currency has negligible effects on the expenditures. The opposite case applies to Morocco since in Morocco only an increase in the exchange rate significantly affects the consumption expenditures.

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