

WAGES, CURRENCY DEVALUATION AND REAL CONSUMPTION IN AFRICA

David Umoru¹ and Aisha Isah Shaibu²

ABSTRACT

The study examines the effect of minimum wages and exchange rate devaluation on real consumption in SSA. Data for real consumption, exchange rate devaluation and minimum wage for a period of 1991 to 2020 were sourced. Various econometric techniques, suitable for analyzing panel data were employed to estimate the coefficients of panel models for real consumption. Prior to model estimations, we conducted panel unit root test based on Levin, Lin & Chut *Im, Pesaran and Shin W- stat ADF-Fisher Chi - square PP-Fisher to ascertain the stationary level of the series (order of integration) of each of the series. Both the ARDL panel estimation and system-GMM estimation techniques were deployed. In particular instrumented our estimation procedures of the SYS-GMM by Blundell & Bond (1995) and Arellano & Bover (1998) by using differences of the lag variables as instruments for the level equation and lags of the variables at levels as instruments for the difference equation. The empirical relevance and validity of our instruments was reported by the Hansen J-statistic with a zero probability value. The ratio of the mean of real consumption spending to standard error of regression estimate is minimized at 0.08. Both estimates of currency devaluation and minimum wage rates signifies negative effect on real consumption spending in SSA. These short-run findings are indeed well supported by long-run estimates. In the short-run, we had -0.2370 coefficient of exchange rate devaluation at current period and a one lag period coefficient of -0.2106 with ARDL estimation. Both short-run (-0.1363) and long-run (-0.1283) coefficients of minimum wage are negative demonstrating that minimum wage rates in SSA are not positively effective, as such wages cannot be relied upon by workers to increase consumption levels. By implication, aggregate demand is negatively affected. The adjustment coefficient of -0.6065 denotes a rapid adjustment mechanism of the ARDL model. The SYS-GMM estimates are extensively akin to the ARDL results. The research findings thus upholds that (1) minimum wage rates in SSA are not positively effective, as such wages cannot be relied upon by workers to increase consumption levels (2) currency devaluation of SSA countries' currencies engenders weak purchasing power of their currencies and so real consumption of the individuals in those countries is negatively affected. The negative effects of currency devaluation on consumption could be pointing to some forms of structural imperfections in economies of SSA countries. This study concluded by recommending the need for implementation of economic policies that stimulate minimum wage rate effectiveness in SSA countries while also executing such policies that have the capacity to relieve structural weaknesses and or imperfections in SSA countries in order for currency devaluation to be positively impactful in SSA by restraining the passing-through inflationary effect on the domestic economies of SSA countries.

Key words: minimum wage rates, consumption, exchange rate devaluation, ARDL, Sys-GMM SSA

INTRODUCTION

Consumption pattern in most developed and under-developed countries are mostly influenced by minimum wages, exchange rate devaluation among others, especially ECOWAS countries where the living standard is facing some challenges as a result of some macro-economic policies which affect the aforementioned variables. In view of this, most writers who had actually investigated the problem of consumption pattern in most African countries, among which is Corsetti et al. (2007) whose study shows that there is a negative relationship between real consumption and exchange rate devaluation or minimum wages in Africa. Given the enormous of this problem, it has become a general issue in which

United Nations (UN) in the 2015 general assembly, now include it as among the 17 SDG's agenda to be actualized in 2030.

Exchange rate devaluation and minimum wage are two major determinants of real consumption (Mariolis, Nikoloas & Apostolis 2019). Especially when their roles are considered with regards to measuring purchasing power of nations this research work is aim at finding the issue facing real consumption in exchange rate and minimum wage in ECOWAS. Moreover, both variables of minimum wages and exchange rate devaluation have been found to affect a host of other factors that are fundamental to the growth and development of any Africa nations. These two factors can be said to have crippled the economies of SSA (Oladunjoye, Olagbaju & Akinbobola, 2019). Regrettably, average real wages declined in recent times, especially in sub-Saharan Africa. According to real wage rates declined by 5 percent between 2014 and 2017. This trend is partly attributable to the situation in specific countries that exert a strong influence on the sub-regional averages. In Africa, employment elasticities

1. Department of Economics, Faculty of Arts, Management & Social Sciences, Edo University Uzairue, KM 7, Auchi-Abuja Expressway, Iyamho, Edo State, Nigeria, david.umoru@yahoo.com/david.umoru@edouniversity.edu.ng
2. Department of Economics, Auchi Polytechnic Auchi, Edo State, Nigeria.

are not constant nor linear. Where increases in a minimum wage are large and immediate, this can result in employment losses. The great variability in employment is partly adduced to variation in regimes of minimum wage rates.

Many economists such as Corsetti et al. (2007) have documented a negative correlation between consumption growth rate differential and the real depreciation rate among OECD countries, and report a median value of -0.30. Devereux & Hnatovska (2010) rationalize the negative correlation found in the data by developing a combined model of inter-regional and international trade and show that the variations in inter-regional and international consumption seem to capture some of the high real exchange rate volatility. Benigno & Thoenissen (2008) provide a two country model, with incomplete asset markets and a non-traded sector, which reproduces the real exchange rate-consumption negative correlation. In their model, however, international prices exhibit less volatility than the standard Backus-Kehoe- Kydland model (1992).

The motivation for this study derived from the fact that household consumption expenditure constitutes the largest component of aggregate demand in Africa and accounts for more than 70% of the Gross Domestic Product, GDP (National Bureau of Statistics, 2010). Only a few studies to the best of my facts have attempted to examine the effect of relationship between minimum wage rate, currency devaluation and consumption in Africa. Also, previous studies carried out focused on either exchange rate devaluation in ECOWAS region. For instance, Ozumba (1978), based his study on currency devaluation and balance of payments; Iyoboyi & Olarinde (2014), focused their study on currency depreciation and balance of payments, while Mariolis, Nikoloas & Apostolis (2019), based their study on wages, currency devaluation and prices focusing on the economies of Greece and Italy. This study therefore intends to close an existing gap of lack of related study in the ECOWAS region. Against this background, we have made attempt to fill this gap by econometrically estimating impacting of minimum wage rates, and exchange rate devaluation on real household consumption spending in Africa.

Research question

- a) To what extent has minimum wage affect real consumption in ECOWAS region?
- b) To what extent has exchange rate devaluation affect real consumption in ECOWAS region?

Research objectives

- a) To investigate the impact of minimum wage on real consumption in ECOWAS region.
- b) To Access exchange rate devaluation on real consumption in ECOWAS region.

Section two of this paper is devoted to literature review. Theoretical framework, model and estimation techniques are discussed under section three while Data estimation and analysis are reported under section four. Conclusion is contained in section five.

LITERATURE REVIEW

Theories of Consumption

There are different theories of household consumption spending as proposed by the likes of Keynes (1936), Duesenberry (1949) and Friedman (1957), and Modigliani & Brumberg (). Keynes related consumption expenditure to current absolute household income. This was followed by relative income theory (RIT) of consumption spending of Duesenberry in 1949. According to RIT, consumption spending depends on individual's income relative to the consumption patterns of other neighbors. Consequently, relative income is the source of variation in the propensity to consume and this relates to demonstration and ratchet effects (Ohale & Onyama 2002; Supriya 2015).

Ratchet effect maintains that notwithstanding shortage of income levels, households tend to uphold consumption already ascertained. Accordingly, households could borrow in order to defend previous consumption level (Supriya, 2015). The demonstration effect advances that the households' consumption expenditure levels is determined by the consumption expenditure levels of neighbors (Ohale & Onyama 2002). In 1954, Modigliani & Brumberg invented the Life Cycle Theory (LIT) of consumption expenditure.

According to the theory consumption spending depends on lifetime expected income of a given household (Deaton, 2005). During period of labour, a proportion of earned income is saved (accumulated wealth without any form of family inheritance) for retirement so as to execute consumption spending in the future lifetime (Ochechuku, 1998). In line with the LCT, in 1959 Milton Friedman brought together the Permanent Income Theory (PIT) of consumption spending is a function of expected income (return on investments or salaries and wages etc.) in the long term (Friedman, 1957; Supriya, 2015). In particular, PIT established a role for determinants of wealth accumulation such as exchange rate and interest rates (Supriya 2015).

Theories of Currency Devaluation

According to Umoru (2022), there are five (5) theories of a devaluation policy, we have the elasticity theory; Marshall-Lerner condition; theory of the J-curve effect; absorption theory; and the expenditure switching theory. These theories can be explained under three approach namely, elasticities approach, income/absorption approach and monetary approach. Elasticities Approach: This approach

highlights substitution in consumption and production of tradable commodities and services as prompted by the relative price changes. The J-curve theory brings into focus two periods, namely short-run (currency contract period) and long-run. In the short-run, contracts previously discussed becomes revalued and trade balance falls because cost of foreign commodities to devaluing nation rises while the long-run is period of contracts improvements. In sum, there are different outcomes about the impact of devaluation on consumption, employment, and national output. Some outcomes of devaluation are expansionary while some are contractionary in some countries.

Theories of Wages

There are different theories of wages and these include, *subsistence theory of wage, wage fund theory, residual claimant theory, marginal productivity theory, bargaining theory, investment theory, and efficiency theory*. The subsistence theory of wages as developed by David Ricardo (1772 - 1823) upholds that wages are determined by cost of survival. Wages are equal to survival amount just sufficient for subsistence. In effect, workers are paid to survive because whenever, actual wages exceeds subsistence level, population rises leading to increase in labour supply and this negatively affect wages and hence, lower wages are paid to workers. Conversely, fall in real wages below the subsistence level, engenders fall in growth rate of population and this is made manifest in a decline in supply of labour while real wages increase.

Adam Smith (1776) and John Stuart Mill (1806 - 1873) developed the wage fund theory which upholds that wages are determined by the amount of surplus funds set aside by employers. Accordingly, wage rate increases when there is an increase in employers' surplus fund as a ratio of number of workers. Theoretically therefore, a positive relation between wage funds and real wages while a negative link is discernable between real wages and number of workers. This theory also states that trade unions are powerless in rising the general wage rate. Residual claimant theory as offered by Francis Walker (1840 - 1897) states that wages are the balance after rent, interest, and profits have been deducted by landlords, capitalists and entrepreneurs. After distributing revenue earned from sale of manufactured products to landlords, capitalists and entrepreneurs, as compensation, the balance was paid as wages to workers. Hence, wages can only rise only when total production rises. This makes no provision for labour supply side.

The marginal productivity theory due to Phillips Henry Wicksteed (1844-1927) and John Bates (1847-1938) upholds the fact that wages are determined by the equality of marginal product (MP) of labour and marginal factor (MF) cost for labour

under environments of perfect competition. Given that MP is the addition to total product by the employment of one unit of labour, the value of MP of labour becomes the price at which the MP is sold. The employment of one more labour unit assumed other factors of production are constant. Theoretically, wages are determined by equality of labour demand and supply in the labor market.

Bargaining Theory due to John Davidson (1857 – 1909), advocates that the determinant of wages is bargaining power of employers' association vis-a-vis. employees' trade unions. Surplus Value Theory of Karl Marx states that wages are a function of the number of hours of labour. In Marx's estimation, it was not the pressure of population that drove wages to the subsistence wage was not induced by population growth but rather the rising mass of unemployed workers was the cause and so the capitalists ought to take the blame. Investment Theory due to H.M. Gitelman (1968) advocates wage rates as a function of individual workers' investment measured in terms of training, experience, and education. Hence, workers' wages are determined by the rate of return on the workers' investment. Workers can control the level of their compensation.

The wage efficiency theory as offered by Alfred Marshall advocates need for firms to pay wages above minimum since increased wages actually boost overall firms' long-run productivity and hence, profitability. In effect, employers ought to pay labourers high wages as incentives to drive to motivation for productivity. Theoretically, wages are not cut to the minimum wage, in the midst of recession or competition even when it is the case that unemployment abound. The determination of minimum wages is to protect workers against unduly low pay (Freeman, 2009). In sum, all theories of real wage make provision for recompense against inflation, sufficiency of salaries, evenhandedness and parity, employees' efforts, diligence and commitment in relation to rising family needs.

Empirical Review

Wages and Consumption

Meyer (2019), established long-run relationship between real income (a measure of wage rate), inflation, productivity and employment having utilized quarterly series from 2000 to 2008. On Chinese minimum wage policy and consumption, Ernest, Harald & YI (2019), established that the response of consumption to minimum wage shock rises in the minimum wage share of household income. Using Canadian data over the period of 1991 to 2019, Young, Adian & Anupam (2021), found evidence in support to establish that minimum wage build up aggregate consumer spending, with positive implications for standard of living. The study by Rossi & Galbraith (2016) established high correlation coefficient between devaluation in

exchange rate and industrial pay inequality. Further estimations showed that a devaluation of the national currency of ten percent amplified industrial pay inequality by three percent. This results seems to corroborate the findings of Artuç & McLarenb (2015)

Exchange Rate Devaluation and Consumption

There are no too many studies regarding relationship between exchange rate devaluation and consumption. Deploying SYS-GMM, Isiaq (2016), reported that exchange rate volatility has negative and significant effect on private consumption in SSA countries. Decomposing uncertainty into its temporary and permanent components, Ho & Njindan (2017), found that the asymmetric uncertainty, the role of consumer prices, and global financial crisis impacted negatively on consumption spending in Asian. The study by Minot (1998) reported larger negative impact of price changes accompanying devaluation on the real income of households in city than income of households in the countryside. On his part, Tille (2006) established heterogeneous impact of exchange rate devaluation across sectors, while it steered significant competitiveness and welfare gain for agents with an elevated exposure to foreign competition but negatively impacted agents into domestic competition.

Using annual time series data over the 1952–2002 period and an error correction model, BahmaniOskooee & Gelan (2008), found that currency devaluation calculated in terms of depreciation of dollar impacted in the short-run asymmetrically on a measure of Gini in the United States. Shahbaz et al. (2013) established that exchange rate devaluation exacerbated income disparity in Pakistan. To Fu and Li (2014) reported that exchange rate-induced consumer price changes emanating from appreciation of the renminbi shortened consumption expenditure of households, with lower gains for poorer households, who spent additional income on supplies that were less responsive to devaluation in exchange rate. Meanwhile, Kraay (2008), reported for the Egyptian economy that a large appreciation of the currency steered 7.4% welfare loss.

THEORETICAL FRAMEWORK

Theoretically, this study is anchored on Keynes-Friedman- Duesenberry relative permanent income (K-F-D-RPI) theory of consumption based on the works of Palley (2008). Duesenberry's theory of consumption upholds that the strength of any individual's desire to increase his consumption expenditure is a function of the ratio of his expenditure to some weighted average of the expenditures of others with whom he comes into contact (Duesenberry, 1948). This is in addition to defending habitual consumption patterns even in midst of income reductions. The fundamental

psychological postulate underlying our argument is that it is harder for a family to reduce its expenditure from a higher level than for a family to refrain from making high expenditures in the first place (Duesenberry, 1948).

Keynes-Friedman- Duesenberry relative permanent income (K-F-D-RPI) theory of consumption is then derived on adjustment of Keynes' psychological law to include the fact that the share of income men or households as the scenario spend out of their permanent income is a function of their relative permanent income, such that a rise in the relative income induces a smaller share (Palley, 2008). The key innovation is making household consumption decisions depend on relative permanent income. Recall specification of Keynes' theory of consumption is a linear estimates of the consumption function using short-run data. Hence, we have it as follows:

$$c_t = by^*, \quad b = mpc \quad (1)$$

Where c_t = consumption of household, y^* is disposable PI of household, and b is MPC respectively. Reconciling the differences between long-run and cross-sectional regression estimates of consumption behavior by Friedman, Duesenberry resolved on equality between actual incomes equals permanent income as specified following the works of Palley (2008). Thus, according to Duesenberry (1948/1949), "The strength of individual to increase consumption expenditure is a function of the ratio of his expenditure to some weighted average of the expenditures of others with whom he comes into contact".

$$c_t = b(y^{**})y \\ y^{**} = 0 < b(y^{**})y < 1, \quad c' < 0, c'' > 0 \quad (2)$$

Thus, for two individual households, the consumption spending function becomes:

$$c_t = b(y_1^{**})y_1 + b(y_2^{**})y_2 \quad (3)$$

Where y^{**} measures the ratio of individual's consumption expenditure to some weighted average of the expenditures of others with whom he comes into contact, y_t is disposable permanent income while relative income is given by:

$$y_1^{**} = \phi y_2^{**}, \quad 0 < \phi < 1 \quad (4)$$

where ϕ is relative income parameter whereby low income households are indicted. Aggregate income across households is given by:

$$y_t = \delta y_1^{**} + (1-\delta)y_2^{**}, \quad 0 < \delta < 1 \quad (5) \\ y_t = \delta \phi y_2^{**} + (1-\delta)y_2^{**}$$

Where δ is household composition parameter, and y_t is average income, relative income of the individual, and is the income of neighbors. Aggregate per capita consumption is a weighted average of household consumption as given by:

$$c_t = \delta b(y_1^{**})y_1 + (1-\delta)b(y_2^{**})y_2 \quad (6)$$

Solving equations (3), (4) and (5) into equation (6), we derived equation (7) which becomes the reduced form for the aggregate consumption function.

$$c_t = \delta b(\phi / (1 + \delta\phi - \delta))\phi y_t / (1 + \delta\phi - \delta) + (1-\delta)b(1 / (1 + \delta\phi - \delta))y_t / (1 + \delta\phi - \delta) \quad (7)$$

$$c_t - c_{t-1} = \gamma_1(c_1^* - c_{t-1}) + \gamma_2 M(c_1^* - c_{t-1}) \quad (8)$$

Equation (8) captures the ratchet and demonstration effects as measured by lagged adjustment mechanism.

Model Specification

For the purpose of this study, a conventional mathematical functional framework in which real consumption is determined by the components of wages and exchange rate in ECOWAS is illustrated as follows:

$$rcon = f(\text{rgdp}, \text{exdv}, \text{mwgr}) \quad (9)$$

Where: rcon is real consumption spending of each SSA, rgdp is country specific national income level, exdv is exchange rate devaluation of the currency of each African country, mwgr is country-specific minimum wage rate. Taking logarithms of the variables and linearizing equation (9) gives the following relation which is to be estimated:

$$\ln rcon_{it} = \alpha_0 + \alpha_1 \ln \text{rgdpi}_t + \alpha_2 \ln \text{exdvi}_t + \alpha_3 \ln \text{mwgr}_t + \text{error}_{it} \quad (10)$$

Note: \ln stands for natural logarithm, α_0 is intercept, α_1 to α_3 denotes regression coefficients, t is time dimension, i is cross sectional dimension (SSA countries were data were found namely, Nigeria, Ghana, Mali, Zambia, Kenya, Ethiopia, South Africa, Botswana, Malawi, Mali, Tanzania, Zambia), and theoretical expectancy: is such that $\alpha_1 > 0$, $\alpha_2 < 0$, $\alpha_3 > 0$.

Estimation Method, and Data Collection Sources

Various econometric techniques, suitable for analyzing panel data were employed to estimate the coefficients of panel models for real consumption. To establish validity of ARDL estimation, we also employed GMM estimation techniques. In particular we utilized the system-GMM by Blundell & Bond (1995) and Arellano & Bover (1998). Unlike the dynamic panel GMM, SYS-GMM uses the differences of the lag variables as instruments for the level equation and lags of the variables at levels as

instruments for the difference equation. This is demonstrated with the following specification:

$$\ln rcon = C(1) + C(2)*\ln rcon(-1) + C(3)*\ln \text{rgdp} + C(4)*\ln \text{exdv} + C(5)*\ln \text{mwgr} @ \text{d}(\ln rcon(-2)) \text{d}(\ln \text{rgdp}(-1)) \text{d}(\ln \text{exdv}(-1)) \text{d}(\ln \text{mwgr}(-1))$$

$$\text{d}(\ln rcon) = C(6) + C(7)*\text{d}(\ln rcon(-1)) + C(8)*\text{d}(\ln \text{rgdp}) + C(9)*\text{d}(\ln \text{exdv}) + C(10)*\text{d}(\ln \text{mwgr}) @ \ln rcon(-2) \ln \text{rgdp}(-1) \ln \text{exdv}(-1) \ln \text{mwgr}(-1)$$

Prior to model estimations, we conducted panel unit root test based on Levin, Lin & Chut *Im, Pesaran and Shin W- stat ADF-Fisher Chi - square PP-Fisher to ascertain the stationary level of the series (order of integration) of each of the series. The test was conducted with and without a deterministic trend (I) for each of the series. The general form of test equation is.

$$\Delta q_t = \theta_0 + \vartheta_1 q_{t-1} + \sum \mu \Delta q_t + \tau \quad (11)$$

The Pedroni and Kao as well as Johansen-Fisher Panel co-integration test were conducted to ascertain whether or not variables of interest were into a long run relation (Seddighi, 2012).

The research evaluates effect of minimum wages and exchange rate devaluation on real consumption in ECOWAS. This study used the unit root to check for stationarity, and also the panel Auto Regressive Distributed Lag (ARDL) Model will be also used to estimate the model, and also used unit root test using the augmented dickey fuller, we use in analyzing the time series data. E-view 10.0 econometric statistical software will be used to analyses the data used in the research work, which was gotten from World Bank data base.

The data utilized for estimation purpose in this study were extracted from world bank data of 2020, for the various ECOWAS countries which are; Nigeria, Benin, Burnika Faso, Cote D'ivoire, Gambia, Ghana, Giunea, Liberia, Mali, and Niger. The study period covers were over 1991 to 2020.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

Descriptive Statistics

Table 1 shows the descriptive statistics. It was revealed from the table that average values of the variables of estimate were relatively low with minimum wage having 2.87, exchange rate devaluation reporting 5.07 and real consumption having 23.48. This indicates that the average variation in there al consumptions among the sampled countries is 22.48. There was no much departure from the sampled means and the medians of the variables estimates which demonstrate normality exchange rate and minimum wage

influences on the real consumption of the countries under consideration.

The efficient behaviour without much dispersion of the data was displayed by the low value recorded from the standard deviation with value of 0.46, 2.3 and 2.5 among minimum wage, exchange rate and real consumption respectively. The behaviour of the standard deviation is an indication of non-explosive similar behaviour disclosed by the selected variables among ECOWAS countries.

The descriptive estimates has a considerable variation in real consumption as depicted by the maximum and minimum values. The maximum values attained by the real consumption was 30.71, exchange rate 9.17 and minimum wage 3.62. While their respective minimum values were 19.96, 3.30 and 1.82 for real consumption, exchange rate and minimum wage respectively. Real consumption exhibited a positives skewness with kurtosis of 4.62 while the minimum wage was 2.4 indicating low peak among the variables. The normality of the distribution was confirmed by the P value of 0.001 of Jarque Bera estimate which is less than 5% level of significance.

Table 1: Descriptive Statistics

lnrcon	lnexdv	lnmwgr	lnrgdp
Mean 23.48368	5.072803	2.866173	3.8973
Median 22.89382	6.163161	2.836698	4.8698
Maximum 30.70588	9.165874	3.622473	2.6073
Minimum 19.96393	-3.303255	1.818077	1.8580
StdDev. 2.487838	2.330485	0.461519	1.4960
Skewness 1.494622	-1.288781	-0.334929	-1.32467
Kurtosis 4.620898	4.749081	2.235952	1.25986
JarqueBera 144.5361	121.2889	12.90599	0.0997
Observations	270	270	270

Source: Authors' estimations using Eviews 10.0.

Analysis of Unit Root Test

The panel unit root analysis used multiple tests of stationarity of the variables simultaneously. Therefore, Levin, Lin & Chut, LmPeseran and Shin W- stat, ADF- Fisher Chi-square and Philip Perron - Fisher Chi-square panel unit root test revealed that all variables are stationary after first differencing. Exogenous variables: Individual effects was chosen as exogenous variable effect, with the Newey-West automatic bandwidth selection and Bartlett kernel with a balanced observations (1991 – 2020) for each test. Thus, while LLC method test null of common unit root process, Im, IPS W-stat, ADF - Fisher Chi-square, and PP - Fisher Chi-square methods test the null of individual unit root. In sum, probabilities for Fisher tests are computed using an asymptotic Chi-

square distribution while other methods of testing assume asymptotic normality.

The results were statistically significant at 1% level as demonstrated by the respective p-values of the variables, implying that a single set of differences I(1) was able transform the non stationarity of the variables used in this study to stationarity. This indicates that stable long run relationship between the sets of variables of study can be investigated further using panel co-integration.

Table 2: Panel Unit Root Summary for D(log) of Real Consumption

Method	Statistic	Prob.	Cross-section	Obs.
Levin, Lin & Chu t^*	-8.50498	0.0000	10	270
Methods	Statistic	Prob.	Cross-sections	Obs.
Im, Pesaran and Shin W-stat	-9.21564	0.0000	10	270
ADF - Fisher Chi-square	116.657	0.0000	10	270
PP - Fisher Chi-square	175.748	0.0000	10	270

Source: Authors' estimations using Eviews 10.0.

Table 3: Panel Unit Root Summary for D(log) of Exchange Rate Devaluation

Method	Statistic	Prob.	Cross-section	Obs.
Levin, Lin & Chu t^*	-6.65684	0.0000	10	270
Methods	Statistic	Prob.	Cross-sections	Obs.
Im, Pesaran and Shin W-stat	-7.66797	0.0000	10	270
ADF - Fisher Chi-square	95.4086	0.0000	10	270
PP - Fisher Chi-square	143.849	0.0000	10	270

Source: Authors' estimations using Eviews 10.0.

Table 4: Panel Unit Root Summary for D(log) of Minimum Wage Rates

Method	Statistic	Prob.	Cross-section	Obs.
Levin, Lin & Chu t^*	-6.10051	0.0000	10	270
Methods	Statistic	Prob.	Cross-sections	Obs.
Im, Pesaran and Shin W-stat	-7.12990	0.0000	10	270
ADF - Fisher Chi-square	90.3293	0.0000	10	270
PP - Fisher Chi-square	123.156	0.0000	10	270

Source: Authors' estimations using Eviews 10.0.

Table 5: Panel Unit Root Summary for D(log) of Real Gross Domestic Product

Method	Statistic	Prob.	Cross-section	Obs.
Levin, Lin & Chu t*	-10.5367	0.0000	10	270
Methods	Statistic	Prob.	Cross-sections	Obs.
Im, Pesaran and Shin W-stat	-6.5429	0.0000	10	270
ADF - Fisher Chi-square	82.1078	0.0000	10	270
PP - Fisher Chi-square	139.5172	0.0000	10	270

Source: Authors' estimations using Eviews 10.0.

Analysis of Co-Integration Results

In searching to identify whether there exist a stable long run relationship among the variables, it is hypothesized as thus: H_0 : No co-integration exists vs. H_1 : co-integration exists. The panel co-integration tests (Panel and Group) statistics conducted all showed that there is no stable long-run relationship between the variables of study as reported in table 6. This is evidenced from the respective p-values of the estimates which are greater than 0.05(5%) level of significance. Therefore, the study failed to reject the null hypothesis and concludes that there is not sufficient evidence to say that co-integration exists among the variables. Though, the existence of no co-integrating relationship does not rule completely the existence of co-integration among the variables but simply means nonexistence of stable co-integration.

Table 6: Panel Co-Integration Results

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.519111	0.6982	-0.811155	0.7914
Panel rho-Statistic	1.549218	0.9393	1.715721	0.9569
Panel PP-Statistic	1.579447	0.9429	1.781775	0.9626
Panel ADF-Statistic	1.292055	0.9018	1.554635	0.9400
	Statistic	Prob.		
Group rho-Statistic	2.497064	0.9937		
Group PP-Statistic	2.363447	0.9909		
Group ADF-Statistic	1.595856	0.9447		

Source: Authors' estimations using Eviews 10.0.

Discussion of Estimated Results

The estimated ARDL results as reported in table 7 revealed that in the short run, there exist a negative and significant relationship between the exchange rate devaluation and real consumption in SSA. In the short-run, we had -0.2370 coefficient of exchange rate devaluation at current period and a probability value of 0.0001 while one lag period coefficient of -0.2106 was obtained. Both estimates signifying

negative effect of currency devaluation on real consumption spending in SSA. The evidence portrayed by the coefficient of the one-lag period of the exchange rate devaluation parameter where a percentage variation brought about 21% reduction real consumption of SSA region is that even with passage of time, devaluation of currency exhibits stable relationship with real consumption. Hence, adjustment process after one year yielded same negative effects. These short-run findings are indeed well supported by long-run estimates. In the long run, the exchange rate devaluation showed a negative relationship with the real consumption. It was discovered that a percentage change in the devaluation of the exchange rate among the SSA countries brought about decrease in the real consumption by 9%. This was confirmed by the coefficient estimates of the exchange rate devaluation where a percentage rise in devaluation of exchange rate of currency of SSA generates decline in real consumption by 0.09. It was statistically significant at (0.01) 1% level. This denotes that currency devaluation of SSA countries' currencies engenders weak purchasing power of their currencies and so real consumption of the individuals in those countries negatively affected. What this implies is that the amount of local currency that is been exchanged for American dollar for purchases is more compared to the units of dollar that is made available for the exchange. The negative effects of currency devaluation on consumption could be pointing to some forms of structural imperfections in economies of SSA countries.

In the same vein, a negative relationship was found to exist between one lag period of minimum wage with a coefficient of -0.1363 and real consumption. It was statistically significant at 5% 1 (0.05) level, indicating that minimum wage rates in SSA are not positively effective, as such wages cannot be relied upon by workers to increase consumption levels. By implication, aggregate demand is negatively affected. The long-run estimate of -0.1283 with probability value of 0.0000 also indicates minimum wages in SSA are negatively impacting real consumptions. Minimum wage has multifarious effects on the general behaviour of the economy both from the micro and macro analytical point of view. The reduction of real consumption is evidenced by the decline in value of minimum wage relative to its purchasing power. This implies that negative effects of minimum wage on consumption spending in SSA is relatively stable but varied with time among wage earners in the SSA countries. This could be pointing to an inflationary environment in SSA whereby consumption levels are hindered by perpetual rise in prices of goods and services.

Similarly, the short-run and long-run estimates of real gdp are 1.1637 and 1.0012 respectively. Both coefficients are approximately same and have same

coefficient sign indicating positive effects of real gross domestic product on consumption spending in SSA. However, the real gdp effect of real consumption spending is insignificant in SSA countries. The adjustment coefficient of -0.6065 is significant, negative and lies within the unit interval, implying sixty percent of disequilibrium in consumption spending in the long-run is corrected and brought back to equilibrium. This denotes a rapid adjustment mechanism.

Table 7: Estimated ARDL Results

Variable	Coefficient	t-Statistic	Prob.*
Long Run Equation			
lnexdv	-0.0902	-4.8698	0.0000
lnmwgr	-0.1283	-13.4178	0.0000
lnrgdp	1.1637	11.9023	0.0000
Short Run Equation			
cointeq01	-0.6065	-10.3892	0.0000
d(lnexdv)	-0.2370	-4.1045	0.0001
d(lnexdv(-1))	-0.2106	-2.1896	0.0295
d(lnmwgr(-1))	-0.1363	-2.3058	0.0131
d(lnrgdp(-1))	1.0012	1.0616	0.07032
Diagnostics			
Mean (rcon)	0.065451	S.D.(rcon)	0.153789
S.e.e (regression)	0.094773	AIC	-1.660048
SSE	2.137678	SC	-1.002000
Log likelihood	292.7069	HQ	-1.396401

Source: Authors' estimations using Eviews 10.0.

We have estimates of system GMM as presented in table 8 below. Only real gross domestic product is insignificant in the GMM estimates while both variables of currency devaluation and minimum wage rates are significant at 1%. As well, the estimates are similar to the ARDL results. The impact of currency devaluation and wage rates on consumption spending is negative. A one percent rise in devaluation and minimum wages induces 0.04 percent and 0.024 percent decline respectively in consumption. The instruments deployed for S-GMM are empirically relevant and valid as reported by the Hansen J-statistic with a zero probability value. Specifically, the ratio of the mean of real consumption spending to standard error of regression estimate is minimized at 0.08.

Table 8: Estimate SYS-GMM Results

Variable	Coefficient	t-statistic	Prob.
lnexdv	-0.0412	-7.2628	0.0000
lnmwgr	-0.0237	-6.2547	0.0000
lnrgdp	1.0169	1.6973	0.0693
List of instruments used in S-GMM estimation = lnexdv(-1), lnmwgr(-1), lnmwgr(-2), lnrgdp(-1)			
Diagnostics			
Mean (rcon)	0.00052	S.D.(rcon)	0.2456
S.e.e (regression)	0.00621	Instrument rank	6
J-statistic	20.8605	Prob(J-statistic)	0.0000

Source: Authors' estimations using Eviews 10.0.

Test of Hypotheses

The hypotheses formulated in this study were tested given the estimates obtained from the autoregressive distributed lag (ARDL) model. The hypothesis are stated in their null form.

H₀₁: Minimum wage does not have significant impact on the real consumption level in ECOWAS countries.

Decision: Negative and significant relationship between minimum wage and real consumption was identified in the short run. Same result was obtained in the long-run. This indicates that in the immediate period when there is a percent adjustment in wages of individuals most especially in SSA countries after a year, real consumptions of individuals declined by 13%.

H₀₂: Exchange rate devaluation has no significant effect on the real consumption level in ECOWAS countries.

Decision: The estimates showed that exchange rate devaluation had a significant effect on the real consumption level in SSA countries. We had -0.2370 coefficient of exchange rate devaluation at current period and while one lag period coefficient of -0.2106. These imply that in the immediate period, the devaluation of the exchange rate port ends devastating effect on the real consumption of the people in the SSA region. This shows that as the exchange rate is devalued against the SSA countries' currencies, their purchasing power parity (PPP) becomes weakened there by bringing about sharp decline in their real consumption.

Policy Implication of Estimates

The study has been able to establish based from the results that there are statistically significant relationships between real consumption level and exchange rate devaluation and minimum wage in ECOWAS countries. Therefore, real consumption level or spending is a primary measure of consumer spending on goods and services in an economy which is determined various macroeconomic indexes like gross domestic product, the minimum wage of individuals, exchange rate devaluation, inflation, savings and soon. To measure the well-being of the ECOWAS countries, the level of consumption among their citizens becomes paramount to policy makers.

On this premise, minimum wage of the individual has been established in this study to be a sturdy determinant of the level of real consumption as evidenced in both the short run and long period analysis. Increase in minimum wage was revealed to increase the real wage which in turn increases the level of real consumption. This findings is line within come hypotheses of Keynes where assumption is

made of income to be a major determinant of the level of consumption that as income of consumers increases, the amount of individual increases though not as much as increase in his income. It therefore, becomes important that, as a matter of policy thrust and to increase the level of consumption of individuals in ECOWAS countries, the government in those countries increase minimum wage so as to increase the level of consumptions in those countries and by implication boost aggregate demand and the overall performances of their economies.

Again, one of the fundamental reasons for country to devalue its currency is to combat trade imbalances. Therefore devaluation reduces cost of a country's exports so as to enabling them more competitive in the global market which in turn increases the cost of imports. Therefore, exchange rate devaluation is documented to impact on consumptions level which in no doubt is associated with its pass-through effects on inflation as documented in this study where in the short run real consumption declines in ECOWAS countries owing to the exchange rate devaluation. Although, in the long run, a positive impact of exchange devaluation on real consumption level was recorded. This positive impact may be connected to the type of policy and other macroeconomics indexes behavior that must have influenced there al consumption level in ECOWAS countries that should be focused by the policy makers of the respective countries in the region.

CONCLUSION

This study examines the impact of exchange rate devaluation and minimum wage rates on real consumption level in SSA countries. Cross sectional data on the aforementioned variables spanning 1985 to 2020 were collected from secondary sources including World Bank website. coefficients of the variables. The major highlights of the research findings are:

1. There are positive effects of real gross domestic product on consumption spending in SSA. However, the real gdp effect of real consumption spending is insignificant in SSA countries.
2. Minimum wage rates in SSA are not positively effective, as such wages cannot be relied upon by workers to increase consumption levels
3. Currency devaluation of SSA countries' currencies engenders weak purchasing power of their currencies and so real consumption of the individuals in those countries is negatively affected. The negative effects of currency devaluation on consumption could be pointing to some forms of structural imperfections in economies of SSA countries.

On the premise of the major highlights of findings, this study concludes that the variability of real consumption level in ECOWAS countries is

statistically and significantly influenced by the exchange rate devaluation and minimum wage. In both periods (short and long run) analysis, the study revealed how fundamentally the real consumption level can be promoted in ECOWAS countries with appropriate policy that enables growth of minimum wage and stable exchange rate devaluation.

Given the major findings and conclusion reached, the study recommends that: Policy that stimulates minimum wage rate effectiveness so as to increase real income and in turn boost real consumption level in SSA countries should be given implementation emphasis to. Since aggregate consumers spending is acknowledged to be a function of disposable income in the economics literature, promoting increase in minimum wages has capacity of boosting individual spending or consumption level with positive spill-over effect on aggregate demand and hence, the overall economies of SSA countries. Economic policies that relieve structural weaknesses and or imperfections in SSA countries should ne vehemently implemented in order for exchange rate devaluation to be beneficial in SSA by restraining the passing-through inflationary effect on the domestic economies of SSA countries. This would positively enhance the value of currencies and by implication promote the rise in the real consumption level in SSA countries.

REFERENCES

- Alagidede, P., & T. Panagiotidis, T., (2012). Stock returns and inflation: Evidence from quintile regressions. *Econ. Letter.* 117 (1), 283–286
- Ari, A., Edson, M. & Felix, F. S. (2021). An empirical assessment of the exchange rate pass through in Mozambique. *IMF Working Paper WP/21/132*
- Bannock, G. & Baxter, R. E. (2011). *The Penguin dictionary of economics*, Eighth Edition. London, Penguin Books.
- Black, J. & Hashimzade, N. (2009). *A dictionary of economics* (3 ed.). Oxford, University Press.
- D'Orlando, F. & Sanfilippo, E. (2019). Behavioral foundations for the Keynesian Consumption Function. *Journal of Economic Psychology.* 31 (6): 1035–1046.
- Dale, B. & Paul, W. (2015). What does the minimum wage do in developing countries? A review of studies and methodologies. *School of Human Resources and labour Relations*, Michigan State University.
- Ernest, D., Harald, H. & Yi, H. (2019). Consumption responses to minimum wages: Evidence from China. *ECB Working Paper No. 2333*.
- Fatai, K., Oxley, L., & Scrigour, F. G. (2004). Modelling the causal relationship between energy consumption and GDP in New Zealand, Australia, India, and Indonesia. *The Philippines*

- and Thailand *Mathematics and Computers in Simulation*, 64, 431-445.
- Freeman, R. B. (2009). Minimum wage again. *International Journal of Manpower*, 15(2), 8-25.
- Fuinhas, J. A., & Marques, A. C. (2012). Energy consumption and economic growth nexus in Portugal. *Journal of Economic Policy*, 12(9), 221-234
- Ghosh, S. (2002). Electricity consumption and economic growth in India. *Energy Policy*, 30, 125-129. [http://dx.doi.org/10.1016/S0301-4215\(01\)00078-7](http://dx.doi.org/10.1016/S0301-4215(01)00078-7). 28/5/2022
- Hashimoto, M. (1987). The minimum wage law and youth crimes: Time series evidence. *Journal of Law and Economics*, 30(2), 443-464.
- Ho, S. & Njindan, T. (2017). Consumption and exchange rate uncertainty: Evidence from selected Asian countries. *MPRA Paper No. 80096*.
- Hsiang-Ke, C. (2017). A structure of the consumption function. *Journal of Economic Methodology*, 14 (2): 227–248.
- ILO (1970). *General Survey concerning the Minimum Wage Fixing Convention, and the Minimum Wage Fixing Recommendation*.
- ILO (2014). *Advances and Challenges in Labour Protection. Conditions of Work and Equality Department Policy Brief*
- Isiaq, O.O. (2016). Exchange rate volatility and private consumption in sub Saharan Africa: A system GMM dynamic panel analysis. *Future Business Journal*, 2(2), 103-115
- Iyoboyi, M. & Olarinde, M. (2014). Impact of exchange rate depreciation on BOP: Empirical evidence from Nigeria. *Congent Economics and Finance*, 2(1), 222-231.
- Larsson, A. & Teigland, R. (2020). *The digital transformation of labour automation: The gig economy and welfare*. London, Routledge.
- Leonard, T. C (2018). *The very idea of apply economics: The modern minimum wage controversy*. Dueham, Doke University Press
- Lewis, A. (2015). *Sustainable consumption and production*. United Nations Environment Programme.
- Mariolis, T., Nikoloas, R., & Apostolis, K. (2019). Wages versus currency devaluation, price pas through and income distribution: A comparative analysis of the Greek and Italian economy. *Journal of Economic Structures*, 8(9), 140-148..
- Meyer, D. (2019). Africa, Proceedings, International Institute of Social and Economic Sciences.
- Neumark, D., & William, I. (2018). *Minimum wages*. Massachusetts, MIT Press
- Oladunjoye, O. N., Olagbaju, I.O., & Akinbobola, T. O. (2019). Impact of exchange rate regime on economic integration in the ECOWAS. *African Journal of Economic Review*, 7(2), 101-110
- Ozumba, C. C. (1978). Devaluation and BOP in ECOWAS countries: A study of Nigerian exchange rate policy. *CBN Economic and Financial Review*, 16(1), 5-11.
- Razzaki, W. A. (2013) The Real Exchange Rate-Consumption Dynamics: An ARDL bounds test approach (1965-2009). *Energy Economics*, 34, 511-517.
- Palley T. (2008). The Relative Income Theory of Consumption: A Synthetic Keynes-Duesenberry-Friedman Model. April Political Economy Research Institute
- Pegkas, P. (2018). The effect of government debt and other determinants on economic growth: the Greek experience. *Economies*, 6(1), 1-19.
- Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, 94(446), 621–634. <https://www.jstor.org/stable/2670182>
- Ramli, A., & Andriani, A.A. (2013). The effects of consumption, private investment, and government expenditures on economic growth in South Sulawesi, Indonesia. *Journal of Economics and Sustainable Development*, 4(14), 145-153. Retrieved from <https://www.iiste.org/Journals/index.php/JEDS/article/view/7832>
- Ridzuan, A., Razak, M., Ibrahim, Z., Noor, A., & Ahmed, E. (2014). Household consumption, domestic investment, government expenditure and economic growth: new evidence from Malaysia. *Journal of Scientific Research and Reports*, 3(17), 2373–2381. <https://doi.org/10.9734/jsrr/2014/11335>
- Umoru D. (2022). Devaluation of Naira, Shocks, and Realities: Evidence Disciplining Strength. 4th Inaugural lecture Series of Edo State University Uzairue, Nigeria. May 11.
- Walter, W. (2001). *South African war against capitalism*. New York, Praeger.
- Young, C. J., Adian, M. & Anupam, D. (2021). The effect of minimum wage on consumption in Canada. *The Economic and Labour Relation Review*, 32(1), 65-89
