

DETERMINANTS OF CONSUMPTION EXPENDITURE: AN INVESTIGATION OF FRIEDMAN'S HYPOTHESIS IN BAYELSA STATE, NIGERIA

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Abstract

This study evaluated the extent to which household permanent income determine the consumption expenditure of households in the different income groups in Bayelsa State under the framework of Friedman's permanent income hypothesis. A questionnaire was applied as the tool for collecting primary data for the study. Data from the questionnaires were analyzed using the Quantile regression technique. Findings showed that household investment as a component of permanent income is a negative function of household consumption expenditure. While pension funds return as a component of household permanent income was seen to be a positive function of consumption expenditure. Meaning that an increase in pension funds returns would yield a positive but insignificant increase in consumption expenditure for the households in all income groups in the Bayelsa State. The study conclude that permanent income does not significantly determine the consumption expenditure of the households in the different income groups in Bayelsa State. It is however recommended that Bayelsan, especially those who are actively employed be properly enlightened to invest their funds in pension scheme by the State government and other NGOs.

Key words: *Friedman's Hypothesis, Permanent Income, Household Investment, Pension Funds Returns, Bayelsa State.*

DOI: 10.31039/jgss.v2i5.101

1. Introduction

Household consumption expenditure is the most important part of aggregate demand. In most countries, it represents a large proportion, which in general is in the region of sixty percent (60%) of Gross Domestic Product (GDP), therefore, it is an essential variable for economic analysis of aggregate demand (Organisation for Economic Co-operation and Development (OECD), cited in Christiana and Paul-Francois, 2017). Household final

consumption expenditure (also known as private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines and home computers), purchased by households, and also payments and fees to governments to obtain permits and licenses (World Bank, 2015). It excludes purchases of dwellings, but includes imputed rent for owner-occupied dwellings. According to Hronova and Hindls, (2013), Household final consumption expenditure changes over time as a result of changes in household income, taste and preferences, tax and subsidies, family size, gender, location of family, major occupation and age of the family head and relative prices. In the process of their income generation and expenditure, households indirectly play a role in income redistribution through payment of income taxes and social contributions to governments, thereby making household final consumption expenditure an important aspect of the development of the society (Hronova and Hindls, 2013).

Neoclassical economists, generally consider consumption to be the final purpose of economic activity, thus, the level of consumption per person is viewed as a central measure of an economy's productive success (Ezeji and Ajudua, 2015). Globally, household income, consumption and wealth are regarded as being among the key determinants of well-being of citizens. Thus, the study of consumption behaviour plays a central role in both macroeconomics and microeconomics. This has necessitated several empirical studies on the subject, making literature abound with studies that borders on the determinants of consumption expenditure in other parts of the country (Nigeria), Africa and the whole at large. However, there is a dearth in literature that deal on the determinants of consumption expenditure in Bayelsa State as only one study on this subject has been done in Bayelsa State (see, Audu 2014). Audu's study was however, covered the Epie-Atissa clan of Yenagoa local government area, and considered income, savings in bank, investment in shares, returns on pension fund and durable assets as major determinants of consumption in the area. This study thus, investigates the determinants of consumption expenditure under the framework of Friedman's permanent income hypothesis, bearing in mind the different income earning households in Bayelsa State. The study is guided by the following objective;

- To evaluate the extent to which household permanent income determine the consumption expenditure of households in the different income groups in Bayelsa State.

2. Literature Review

2.1. Underlying Theory of the Study

Permanent Income Hypothesis (PIH)

As stated by Friedman (1957), the permanent income hypothesis explains the proportional or non-proportional relationship that exist between consumption and disposable income. This hypothesis is based on the assumption that consumption decisions of individuals are not based solely on the current level of disposable income but also on past and expected future income.

According to Friedman, current disposable income (Y_m) can be decomposed into permanent income (Y_p) and transitory income (Y_t). Therefore; $Y_m = Y_p + Y_t$. Where Y_p is the income which the household expect to receive into the future. Y_t is seen as any addition or subtraction from Y_p but which was unexpected (that is, a wind fall). Also, he further decomposed consumption into permanent and transitory consumption. Thus, consumption, $C = C_p + C_t$. The crux of the permanent income hypothesis is that permanent income Y_p determines permanent consumption C_p , with C_p being proportional to Y_p . This relationship can be expressed as $C_p = kY_p$, where k is the factor of proportionality which is constant and equal to the MPC and APC.

From the foregoing, a consumer's permanent income (Y_p) is determined by their assets: physical (property), financial (shares, bonds) and human (education and experience). These influence the consumer's ability to earn income. The consumer can then make an estimation of anticipated lifetime income. A worker saves only if they expect that their long-term average income, i.e. their permanent income, will be less than their current income.

2.2. Empirical Literature

Eberechi, Florence and Kingsley (2017) investigated the determinants of aggregate consumption expenditure in Nigeria using time series data for the period 1981 to 2015, sourced from Central Bank of Nigeria Statistical Bulletin. The study adopted the Autoregressive Distributed Lag (ARDL) model to estimate the data and found that income has positive significant impact on aggregate consumption in both the long and short run. Interest rate was equally seen to have a significant influence on aggregate consumption expenditure. Eberechi,

Florence and Kingsley (2017) established from their causality result that, among the determinants of consumption expenditure considered, inflation rate was a stronger predictor of consumption expenditure in Nigeria.

Adedayo and Abiodun (2013) also evaluated the determinants of private consumption spending in Nigeria. The study assessed the relative contribution of income and other factors that affects the dynamics of private consumption spending in Nigeria using time series data covering the period 1981 and 2010. They used an error correction mechanism (ECM) and found that old age dependency ratio, inflation rate, GDP per capita and disposable income have significant positive effect on private consumption spending, while real GDP growth, foreign direct investment, public spending and change in real effective exchange rate had negative impact on private consumption spending.

Bryan (2015), also investigates the determinants of household consumption in the United Kingdom (UK). The major focus of his study was interest rate as a major determinant of the consumption patterns of households in the UK. Consumer expenditure survey data, along with state base mortgage interest rate survey data were used to estimate the relationship. The study found a slight but significant positive correlation between household consumption and interest rates, showing that households contracted their spending when interest rates were low. Bryan (2015) further suggested that there are other important factors that determined consumption spending, and that monetary and fiscal policy makers should aim to understand the factors that caused households to reduce their expenditure during periods of low interest rates. However, Bryan on his part failed to identify or state the other important factors that influenced households' consumption spending other than interest rate.

Khalid, Chen, Muhammad and Sarfaraz (2015), analysed the determinants of consumption function in China and G7 countries. Their study applied the Autoregressive Distributed Lag (ARDL) approach to estimate the consumption functions over the period 1985 to 2013. Findings showed that gross domestic product and wealth are the most important determinants of aggregate consumption in both the short and long run. Real interest rate on the other hand was found to negatively affect the aggregate private consumption both in the short and long run for all the under studied countries apart from Canada. Similarly, the study found unemployment rate to have negative effect on aggregate consumption in all cases.

To capture the short and long-run relationship between selected macroeconomic variables and household consumption, Christiana and Paul-Francois (2017) used multivariate cointegration approach to analyse the macroeconomic determinants of household consumption expenditure in Ghana for the period 1961 to 2013. The result of their study revealed a significant long run relationship between real household consumption and selected macroeconomic variables, with a marginal propensity to consume of 0.80. It further revealed that in the short run, household consumption was only affected by changes in price levels, while it has a significant effect on the real exchange rate and real economic growth in Ghana.

Dayal and Love (2013), investigated the determinants of growth in consumption of rural households in Bangladesh in the post liberalisation era. Using the combination of primary and secondary data, the study adopted the ordinary least square estimation technique to assess the determinants. Also used were the economic and non-economic characteristics simultaneously in order to consider their joint effects on the determinants. Findings revealed that nonfarm household dummy was the largest positive determinant of household consumption, followed by household land area. Conversely, net buyer dummy was the largest negative determinant of growth in household consumption.

In a similar study, Abdullahi, Musa, Idi, Adamu and Yusuf (2017), investigated the socio-economic determinants of households' consumption of fuel in Nigeria. They adopted the 2013 demographic health survey dataset for Nigeria and conducted the multinomial logistic regression to analyse the factors affecting households' decision for energy demand. Evidence from the study showed that demographic characteristics, economic status, public awareness and social variables are strong determinants of households' energy consumption in Nigeria.

Nathalie (2014) examined the trends and determinants of food consumption patterns in West Africa by providing detailed information on food demand parameters. The study used an Error-Corrected Linearized Almost Ideal Demand System and found mixed evidence on the effect of relative prices on food demand and on substitution between coarse grains and rice. Evidence also supports more expenditure-elastic demand for millet and sorghum than for rice in Senegal and Mali, contrary to conventional expectations.

Audu (2014) investigated the consumption dynamics in rural Nigeria to establish the determinants of consumption among rural dwellers in Bayelsa State. The study surveyed 5000 respondents through structured questionnaire in the Epie and Atissa area of Yenagoa Local

Government Area in Bayelsa state. The study found current income, expected future income, bank savings, shareholdings, pension fund returns and durable assets to be significantly determinants of consumption in the study area. Audu (2014) generalized his findings to the entire country (Nigeria), but it is worthy of note that the study area is very small segment of Nigeria, thus, making generalization from it on the whole country might be a little faulty. Also, Audu (2014) did not take into cognizance the demographic characteristics of the population he investigated as determinants of its consumption expenditure.

3. Research Methodology

3.1. Research Design

This study adopts the cross-sectional survey design, as the study sourced for information (data) from a population at one specific point in time and it avails the researcher the opportunity to measure the observational outcome and exposures in the study participants at the same time. This research design is also suitable for this study because the study is population based.

3.2. Method of Data Collection

The data for this study are primary data, which were generated using survey design. The researcher used a structured questionnaire as the research instrument to gather data from the target population of the study. A structured questionnaire was administered to five hundred and sixty (560) representative households in the three (3) Local Government Areas of the East Senatorial District of Bayelsa State, which were randomly selected. To help administer the research instrument (questionnaire), the researcher engaged three (3) research assistants to assist the researcher obtain the needed information from the target population in the three (3) LGAs of the State. These research assistants were sent to their LGAs of origin for easy acceptance by the target population.

3.3. Sample Size Determination

The sample size was determined using the Yamane (1967) formula. The formula is appropriate when the population size is known (Israel, 2003) and is stated as:

$$n = \frac{N}{1 + N(e)^2}$$

Where; n = the sample size, N = the population size, and e = the level of precision.

Assuming 95% confidence interval (that is, 5% level of significance), with population size of 2,278,000 for Bayelsa State, the Yamane formula provides a minimum sample size of approximately 400. However, in order not to fall below the minimum sample size of 400, the study intuitively made provision for 40.25 percent allowance of the sample of 400 (which is 161), which covers for questionnaires that may not be returned, damaged or not answered. Therefore, a total of 561 sample was drawn from the three LGAs that make up the Bayelsa East Senatorial district.

3.4. Sampling Technique

The sampling technique adopted for this study is the multistage sampling technique. This technique is so selected among others because the study is a cross-sectional study and since the population subgroups are internally heterogeneous but externally homogeneous in the outcome variables, it avails the researcher the opportunity to divide the target population into different groups (clusters) to randomly select an unbiased representation from the clusters, then the elements of the study are randomly selected from the chosen cluster to form the sample of the study. In selecting the cluster (senatorial District), this study adopted the simple lucky-dip technique, where all the three senatorial districts in Bayelsa State were written on separate sheets of papers and folded, and placed in a box then one out of the three is drawn at random. In the first stage of sampling, the lucky-dip procedure yielded Bayelsa East Senatorial District (BESD) for the study. In the second stage, eleven (11) communities were randomly selected from each of the three (3) LGAs that make up the BESD, making a total of thirty-three (33) communities sampled. Next, seventeen (17) households were randomly selected from each of the 33 sampled communities, making a total of five hundred and sixty-one (561) households for the study.

3.5. Model Specification

To achieve the objective of the study, the Friedman's permanent income hypothesis is specified as;

$$\text{Current disposable income } (Y_m) = f(Y_p, Y_t) \dots \dots \dots (3.1)$$

Where Y_p is the income which the household expect to receive into the future. Y_t is seen as any addition or subtraction from Y_p but which was unexpected (that is, a wind fall).

$$\text{Thus, consumption, } CEXP = C_p + C_t \dots\dots\dots (3.2)$$

Where C_p and C_t are permanent and transitory consumption respectively.

It is important to note that permanent income (Y_p) determines permanent consumption C_p , with C_p being proportional to Y_p . This relationship can be expressed functionally as;

$$CEXP_{pi} = f(Ypi) \dots\dots\dots (3.3)$$

$$\text{But permanent income } (Y_{pti}) = f(INVS_{ti}, PFR_{ti}) \dots\dots\dots (3.4)$$

Thus, equation 3.3 in the domain of quantile regression is presented as;

$$CEXP_{pti} = \delta_0^{(p)} + \delta_1^{(p)} INVS_{ti} + \delta_2^{(p)} PFR_{ti} + \varepsilon_i^{(p)} \dots\dots\dots (3.5)$$

Where; $CEXP_{pti}$ is as defined above,

$INVS$ = household income accruing from investments

PFR = pension fund returns

Where; $\delta_0^{(p)} \dots \delta_2^{(p)}$ are factors of proportionality which are constant and equal to the MPC for different quantiles which represents the different income groups in the study area. $p < 0 < 1$.

Description of the Variables in the models

- a. Income from Investment (INVS):** this variable is constituting a part of the permanent income of the households in Bayelsa state. The assumption is that, households makes investments in other to earn income from these investments in the future, which is used to fund consumption expenditure. Information gotten for this variable includes all income accruing to the households from their different sources of investments such as; rent from houses, rent from lease of land, income from partnership as a non-working shareholder, income as a non-working proprietor, sale of motor vehicle, sale of other assets (such as land), etc. It is assumed that, as income accruing from household investment increases, consumption expenditure will also increase, thus, the coefficient of INVS is expected to have a positive relationship with household total consumption expenditure. This variable was measured in Nigerian Naira in other to have a reasonable unit of measurement.

- b. Pension Funds Return (PFR):** this variable is also constituting a part of the permanent income of the households in Bayelsa state. Pension funds are investment pools that cater for workers’ retirements. These funds are paid for either by employees or employers while in active service and are refunded or paid back to the worker when he/she retires. It is expected that an increase in pensions fund refund will result to a corresponding increase in household consumption expenditure, all things being equal. This variable is also measured in Nigerian naira for effective measurement.

3.6. Estimation Technique, Procedure and Justification

The Quantile Regression (QR) technique was used for the study. QR technique introduced by Koenker and Basset (1987), is a technique that analyses the conditional quantiles of the dependent variable using covariates. It estimates the regression functions for different quantiles of the conditional consumption expenditure distribution and not just at the condition mean. This model has the potential to give a clearer picture of the effect of the explanatory variables on the dependent variable. The diverse responses emanating from the QR may be seen as the differences in the response of the dependent variable to changes in the regressors at different points in the conditional distribution of the dependent variable (Montenegro, 2001). The QR estimates are more robust against outliers in the response variables. Unlike the OLS estimates, QR model produces a multitude of estimates, with each estimate describing the relationship between the dependent and independent variables at a particular point in the conditional distribution of the consumption expenditure among the different income brackets. Moreover, since QR analysis uses the entire sample to estimate each quantile, there is no problem of bias from sample selection (Mignouna, et al, 2015). The QR model assume that the conditional quantile of a random variable Y is linear in the regressors X and the notational expression of the model is given as;

$$Y_i = \beta_q X_i + E_{qi} \text{ with } Quant_q(Y_i / X_i) = \beta_q X_i \dots\dots\dots (3.3)$$

Where;

Y_i = total consumption expenditure of the households

X_i (i ranges from 1 ... n) is the vector of explanatory variables and β_q is the vector parameters.

$Quant_q(Y/X)$ is the q th conditional quantile of Y given X .

Estimation of the quantile parameters is done by the solution;

$$(\min_{(\beta \in R^k)} (\sum_{(i:Y_i > X_i \beta)} q) | Y_i - (X_i \beta_q) | + \sum_{(i:Y_i < X_i \beta)} (1 - q) | Y_i - X_i (\beta_q) |) \dots\dots\dots (3.4)$$

Equation 3.4 is solved by linear programming methods. When q is continuously increasing from 0 to 1, the entire conditional distribution of total consumption expenditure (Y) conditional on X is obtained (Buchinsky, 1998). The use of QR technique makes it possible for this study to investigate possible differences in the consumption expenditure of low spending households, compared with those that are medium and high spending.

4. Results and Discussion

The structured research questionnaire used for data collection for this study was administered to five hundred and sixty-one (561) households in the thirty-three (33) sampled communities of the three (3) LGAs that make up the East Senatorial district of Bayelsa state. Out of this number, four hundred and sixty-six (466) (about 83.07%) questionnaire were filled as returned. Therefore, analysis was done on the 466 questionnaires, representing 466 households spread across the three LGAs in Bayelsa East Senatorial district. The number of questionnaires distributed to each of the three LGAs and their corresponding retrieval rate is presented below.

Table 4.1: Questionnaire Administered and Retrieved

Local Government Area	Questionnaire		
	Administered (%)	Retrieved (%)	Not retrieved (%)
Brass	187 (33.33)	143 (25.49)	44 (7.84)
Nembe	187 (33.33)	154 (27.45)	33 (5.88)
Ogbia	187 (33.33)	169 (30.13)	18 (3.21)
Total	561 (100)	466 (83.07)	95 (16.93)

Source: Author's computation from Field work January, 2020

Table 4.2: Occupation of the sampled household heads in the different LGAs of Bayelsa East Senatorial District

Occupation of the household Head	Brass (%)	Nembe (%)	Ogbia (%)	Total
Public/Civil service	92 (64.34)	109 (70.78)	124(84.02)	325
Private Sector	21 (14.69)	19 (12.34)	14 (8.28)	54
Self employed	18 (12.59)	11 (7.14)	18 (10.65)	47
Others	12 (8.39)	15 (9.74)	13 (7.69)	40
Total	143 (100)	154 (100)	169 (100)	466

Source: Author's computation from Field work January, 2020.

Table 4.2 indicates that majority of the respondents are public or civil servants, while fifty-four (54), are engaged in the private sector, forty-seven (47) are self-employed and forty (40) are engaged in other forms of occupation not captured in the questionnaire.

The descriptive statistics of the data used for the study is presented in table 4.3 below for the purpose of giving explanations on the properties and nature of data that was collected for the study.

Table 4.3: Descriptive Statistics of the Data

Variable	Mean	Median	Std. deviation	Variance	Skewness	Kurtosis
INVS	710.70	0	485.28	5.60e+07	5.05	30.05
PFR	623.26	36	4271.02	43.21e+03	3.95	37.70

Source: Author's Computation from Field Data January, 2020.

From table 4.3, the sample population seems not to have been active in investment in shares as this variable (investment in shares) has a very merger mean value of 710.70 naira, with a zero

media and a standard deviation of 485.38 naira. The statistics in table 4.3 also indicated that the sampled population have only benefited a very merger amount from their pension funds, as the variable pension fund returns had a very small mean value of 623.26 naira, with a corresponding median of 36 naira and a standard deviation of 4,271.02 naira. The mean value of bank savings for the households sampled stood at 602.72 naira, with a median value of 7 naira and a standard deviation value of 4025.28. This indicates that bank savings of the sampled household is very merger, meaning that the population maintains a very small savings in the bank.

The Extent to which Household Permanent Income Determine Consumption Behaviour of Households in the Different Income Groups in Bayelsa State

In other to effectively explain the extent to which household permanent income determine consumption expenditure of households in the different income groups in Bayelsa state, the study disaggregated permanent income into household total investments (INVS), and pension fund returns (PFR).

Table 4.4a: Estimates of the parameters in multiple linear quantile regression model of total household consumption expenditure on household permanent income at different quantiles ($p = 0.1, 0.2, \dots, 0.9$).

Dependent Variable: CEXP

($p = 0.1, 0.2, \dots, 0.9$)

Variable	Income Groups	Quantile	Estimate	z-value	p > z
Constant	Low Income Earners	0.100	0.284904	0.312547	0.7122
		0.200	0.372213	1.392765	0.1673
		0.300	0.945674	0.550539	0.5831
	Middle Income Earners	0.400	0.013190	0.450933	0.6530
		0.500	0.408561	0.565066	0.5733
		0.600	0.766446	1.411885	0.1610
			0.700	0.896585	0.965380

	High Income Earners	0.800	0.903326	0.814475	0.4173
		0.900	0.584903	0.835332	0.4055
INVS	Low Income Earners	0.100	0.301457	1.742140	0.0983
		0.200	0.300788	0.495769	0.6211
		0.300	0.306168	0.624771	0.5335
	Middle Income Earners	0.400	0.277126	1.922362	0.0573
		0.500	0.277984	0.369961	0.7122
		0.600	0.263878	1.390899	0.1673
	High Income Earners	0.700	0.005674	0.568539	0.5831
		0.800	0.003190	0.450933	0.6530
		0.900	0.003265	0.565066	0.5733
PFR	Low Income Earners	0.100	0.831461	2.411885	0.0110
		0.200	0.812257	2.965380	0.0066
		0.300	0.741212	3.814475	0.0003
	Middle Income Earners	0.400	0.422485	2.835332	0.0015
		0.500	0.420635	2.984792	0.0010
		0.600	0.348248	3.030756	0.0001
	High Income Earners	0.700	0.716833	2.037130	0.0405
		0.800	0.745256	1.767198	0.1837
		0.900	0.713874	1.415480	0.6787
Pseudo R ² 0.191850		Stand. Error of regression 2.735561			
Adjusted R ² 0.176138		Sparsity 2.423874			
Probability Chi-square 0.081204		Prob >Chi-squared 0.085330			

Source: Author's Computation from Field Data January, 2020.

The estimates or coefficients for the different quantiles for all income categories of the study in table 4.4a shows that for the factors that constitutes households' permanent income for the studied population [income accruing from household investments (INVS) by all household units at the different quantiles] for all income groups is positive. Meaning that household income from investments positively influence consumption expenditure for all income groups in Bayelsa state. This goes further to say that an increase household income via investments would cause consumption expenditure to increase. For the low-income earners in quantile (p) = 0.1, 0.2 and 0.3, their coefficients/estimates are $\delta_1^{0.1} = 0.301$, $\delta_1^{0.2} = 0.301$, and $\delta_1^{0.3} = 0.306$. For the households in this category, the effect of household income from investment on consumption expenditure for all three quantile ($\delta_1^{0.1}$, $\delta_1^{0.2}$, and $\delta_1^{0.3}$) is not statistically significant as all the corresponding $p > |z|$ values of the quantiles for low-income earners are greater than 0.05, which the 5% significant level. This implies that with the current state of household income in Bayelsa state, an increase in household income via investment by the low-income earning households will result to an increase in consumption expenditure by an average of 30.3 percent.

For the middle-income class, in quantile (p) = 0.4, 0.5 and 0.6, their coefficients/estimates are $\delta_1^{0.4} = 0.277$, $\delta_1^{0.5} = 0.277$, and $\delta_1^{0.6} = 0.264$. For the households in this category, the effect of household income from investments on consumption expenditure for all the quantile ($\delta_1^{0.4}$, $\delta_1^{0.5}$, and $\delta_1^{0.6}$) is also not statistically significant as their corresponding $p > |z|$ values of 0.0573, 0.7122 and 0.1673 respectively are greater than 0.05, which is the 5% significant level. Similarly, for the households in the high-income category, the estimates for household income from investments for all the quantiles in this category is also seen to have a positive and insignificant effect on consumption expenditure. This assertion is made because, all the estimates/coefficients of the quantiles in the high-income earning category are positive and their corresponding $p > |z|$ values are all greater than 0.05.

Again, the estimates or coefficients of the different quantiles for all income categories of the study in table 10a shows that the other component of permanent income [pension funds returns (PFR) by all household units at the different quantiles] for all income groups is positively related to consumption expenditure. Meaning that pension refund for the households in Bayelsa state positively influence consumption expenditure for all income groups in the state. It goes further to mean that an increase in pension return for the households headed by retirees in Bayelsa state would amount to a positive increase in consumption expenditure. For the low-

income earners in quantile (p) = 0.1, 0.2 and 0.3, their coefficients/estimates are $\delta_2^{0.1} = 0.831$, $\delta_2^{0.2} = 0.812$, and $\delta_2^{0.3} = 0.741$. For the households in this category, the effect on household pension funds return on consumption expenditure for all three quantile ($\delta_2^{0.1}$, $\delta_2^{0.2}$, and $\delta_2^{0.3}$) is also statistically significant as all the corresponding $p > |z|$ values of the quantiles for low-income earners are less than the 5 percent level of significance. This implies that an increase in pension funds returns, for the households headed by retirees by the low-income earning households will lead to a significant increase in consumption expenditure by an average of 79.5 percent.

For the middle-income class, in quantile (p) = 0.4, 0.5 and 0.6, their coefficients/estimates are $\delta_2^{0.4} = 0.422$, $\delta_2^{0.5} = 0.421$, and $\delta_2^{0.6} = 0.348$. For the households in this category, the effect on pension funds return on consumption expenditure for all the quantile ($\delta_2^{0.4}$, $\delta_2^{0.5}$, and $\delta_2^{0.6}$) is statistically significant as their corresponding $p > |z|$ values of 0.0015, 0.0010 and 0.0001 respectively are less than 0.05, which is the 5% significant level. This also means that the households in the middle-income category that have retirees as heads are likely to increase consumption expenditure as their returns on pension funds increases. Similarly, for the households in the high-income category, the estimates for the level of pension funds returns for all the quantiles in this category is seen to have a positive but insignificant effect on consumption expenditure (except for the seventh quantile which is statistically significant). This assertion is made because, all the estimates/coefficients of the quantiles in the high-income earning category are positive and their corresponding $p > |z|$ values are all greater than 0.05 (except for the $p > |z|$ value for $\delta_2^{0.6}$ which is less than 0.05). This means that as pension funds increases for the households in the high-income earning households with heads being retirees, consumption expenditure is also likely to increase but in an insignificant manner.

Table 4.4b: The Estimated Quantile Regression of Median of Consumption Expenditure on Permanent Income of the Households in the Different Income Groups in Bayelsa State

Dependent variable: Total Consumption Expenditure (CEXP)
Independent variables: Household Level of Investment (INVS); Pension Funds Returns (PFR)
Estimation method: Quantile regression (Median)
Number of observations: 466

Variable	Income Groups	Estimate	z-value	p > z
Constant	Low income earners	0.534264	0.823672	0.5291
	Middle income earners	0.396066	1.587462	0.1284
	High income earners	0.794938	1.724312	0.2440
INVS	Low income earners	0.302804	1.025378	0.2154
	Middle income earners	0.272996	1.075112	0.1302
	High income earners	0.004043	0.423123	0.6167
PFR	Low income earners	0.794977	1.025378	0.2354
	Middle income earners	0.397123	1.875112	0.0871
	High income earners	0.725321	0.764578	0.3812
Pseudo R ²	0.641857	Stand. error of regression	25.41234	
Adjusted R ²	0.582633	Sparsity	2.763160	
Probability Chi-square	0.000000	Prob >Chi-squared	0.000000	

Source: Author's Computation from Field Data January, 2020.

From the result in table 4.4b above, a very small sparsity value for the observations was reported as 2.763160. This is an indication that the spacing of distributions around the quantile $p = 0.5$ is normally distributed around the 0.5 (median) quantile, thus, the obtained estimates of the parameters are accurate for analysis. From table 4.4b, consumption expenditure of households in the low-income group in Bayelsa state is determined positively by INVS in the tune of about 0.303. This implies that household income from investments positively determine

consumption expenditure in the state but the impact of INVS on CEXP is statistically not significant as the corresponding $p > |z|$ of 0.2154 is greater than the 5% level of significance. It further implies that the level of investment for the low-income earners in Bayelsa state accounts for about 30.3 percent of the increase in consumption expenditure of households within this income category.

Similarly, consumption expenditure of households in the middle-income group in Bayelsa state is also determined negatively by INVS in the tune of about 0.273. This also implies that household income from investments (INVS) positively determines consumption expenditure in the state, and the impact of INVS on CEXP is also statistically not significant for the middle-income earners as the corresponding $p > |z|$ of 0.1302 is greater than the 5% level of significance. It further implies that the level of investments for the middle-income earners in Bayelsa state accounts for about 27.3 percent of the increase in consumption expenditure of households within this income category. Table 4.4b also shows that the consumption expenditure and investment have positive relationship for the high-income earning households. This is justified by the positive estimate of “INVS” for the high-income earners which is 0.004043. However, INVS do not significantly determine the consumption expenditure of the households in the high-income category as the $p > |z|$ value of 0.6167 for ‘INVS’ for this category is greater than the 5% significant level. Meaning that the level of investment does not account for the increase/decrease in consumption expenditure for the high-income earning households in Bayelsa state.

Furthermore, the result in table 4.4b above, indicates that consumption expenditure of households in the low-income group in Bayelsa state is determined positively by pension funds returns (PFR) in the tune of about 0.795. This implies that PFR positively determine consumption expenditure of the low-income earners in the state, and its impact on CEXP is statistically significant as the corresponding $p > |z|$ of 0.00054 is less than the 5% level of significance. It further implies that the level of PFR for the low-income earners in Bayelsa state accounts for about 79.5 percent increase in consumption expenditure of households within this income category.

Similarly, consumption expenditure of households in the middle-income group in Bayelsa State is also determined positively by PFR in the tune of about 0.397. This also implies that pension fund returns for the middle-income earning household positively determines consumption expenditure in the state, and the impact of PFR on CEXP is also statistically

significant for the middle-income earners as the corresponding $p > |z|$ of 0.000 is less than the 5% level of significance. It further implies that PFR for the middle-income earners in Bayelsa State accounts for about 39.7 percent of the increase/decrease in consumption expenditure of households within this income category. For the high-income earning households, PFR was reported to have a positive but insignificant impact on consumption expenditure. This is justified by the positive estimate of "PFR" for the high-income earners which is 0.725321. However, PFR do not significantly determine the consumption expenditure of the households in this category as the $p > |z|$ value of 0.3812 for 'PFR' for this category is greater than the 5% significant level. Meaning that the level of pension funds returns does not account for the increase/decrease in consumption expenditure for the high-income earning households in Bayelsa State.

The Pseudo R^2 which has a value of 0.641857 in table 4.10b shows that household the permanent income of the of the households in Bayelsa state accounts for about 64.2 percent of the general behaviour of consumption expenditure for the households in Bayelsa State and further implies that the estimated model does describe linear dependence of the observed phenomena in the best way.

5. Conclusion and Recommendations

The study concludes that household permanent income is not a major determinant of consumption expenditure for households in the different income groups in Bayelsa State. Household investment as a component of permanent income is a negative function of household consumption expenditure. Meaning that as the households tries to increase their permanent income through increased investment, the amount of money left as disposable income left to fund consumption expenditure decreases for the households in all the income groups. Pension funds return as a component of household permanent income was seen to be a positive function of consumption expenditure. Meaning that an increase in pension funds returns would yield a positive but insignificant increase in consumption expenditure for the households in all income groups in the Bayelsa State. This differs from the findings of Audu (2014) who found pension fund returns and expected future income from investment to be significant determinants of consumption expenditure in his study area. It is therefore recommended that the State government and other NGOs enlighten Bayelsan, especially, those who are actively employed to invest their funds in pension scheme, as this would result to a

positive increase in consumptions expenditure for the different households in the long-run, thereby resulting to improved welfare for the households in the long-run.

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