

# Partial Ordered Logit Analysis of Confidence Levels in Financial Institutions in Ghana. The Case of Asante Mampong Municipality

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Received: May 2, 2020

Accepted: May 25, 2020

Online Published: June 8, 2020

doi:10.5539/ijef.v12n7p21

URL: <https://doi.org/10.5539/ijef.v12n7p21>

## Abstract

In recent times the financial sector (FS) of Ghana has been saddled with liquidity and operational challenges leading to several financial policies put in place by the Central Bank. The financial crisis and its resultant stringent measures affected public confidence as many customers lost their investments/savings while some financial institutions were consolidated or collapsed. Noting the critical role of public confidence in the financial sector, this paper assessed the confidence levels in FS of Ghana, using Asante Mampong Municipality as a case study. A random sample of 384 respondents was used. Due to the ordinal nature of the dependent variable (confidence levels), the Partial Proportional Odds (PPO) model was used when the ordered logit model failed to pass the proportional odds assumption. About 46.4% of the respondents reported having 'no confidence' in the financial institutions of the country, while 37% indicated having 'somehow confident' in the sector. Less than 20% of the respondents expressed 'confident' (13.3%) or 'very confident' (3.4%) in the FS. Duration of engagement with a financial institution, loss of investment, awareness of crisis/reforms of the financial sector and income levels affected the confidence levels in the financial sector. Financial institutions are recommended to strengthen their relationship with customers by providing improved services and policy measures that secure customers investment/savings to ensure sustained and increased levels of confidence.

**Keywords:** Partial proportional odds model, Financial institutions, confidence levels, Mampong municipality

## 1. Introduction

### 1.1 Study Background

The Ghanaian financial sector, until the privatization in 1990s, was basically comprised of state-owned banks (Bank of Ghana [BoG], 2013). This resulted in limited access to and inefficient provision of financial services to both the formal and the informal sectors of the Ghanaian economy. Recognising the critical role of the financial sector in economic development of the country, by 2016 over 32 banks and an estimated 460 savings and loans companies had been granted licenses to operate in the country (BoG, 2016). Indeed, access to financial services for the past two decades has improved significantly, where credit facilities for instance could be organized in hours. Again, financial institutions such as microfinance schemes have made financial services easily accessible, especially to those in the informal sector, who could not access credit facilities in the traditional financial institutions (Asiama & Osei, 2007).

In the recent past however, Ghana's financial sector has experienced instability, governance, operational and solvency challenges. Many of the challenges extended beyond the manageable thresholds provided under the law and policy regulations set by the Central Bank of Ghana. The banking sector in particular was marred with high levels of operational mismanagement and non-compliance to BoG regulations, which led to the collapse, closure and or sizable losses of depositors' savings. In response, the BoG under its powers, as enshrined in the 1992 Constitution of Ghana, the Bank of Ghana Act, 2002 (Act 612) as amended, and the Banks and Specialised Deposit-taking Institutions Act, 2016 (Act 930), as the overall supervisory and regulatory authority in the country, instituted and implemented stringent regulatory measures. This step was to sanitize and promote stability within the financial system; and to protect the interest of depositors. The financial crisis and its initial policy and regulatory response negatively affected public confidence in the financial sector and resulted in panic withdrawals in many banks. The measures instituted to ensure a robust banking system and to restore public

confidence in the financial sector, included a higher minimum stated capital requirements of universal operating banks in Ghana from GH ₵120 million to GH ₵400 million representing about 233% increase (BoG, 2016). Banks were supposed to fulfil this requirement by the end of December 2018 in order to avoid the risk of consolidation or forced license revocation. As of May, 2019, 27 licensed banks, 37 savings and loans companies and 319 licensed Microfinance and money lenders remained authorized financial institutions to operate in the country (BoG, 2019). While this among other operational measures instituted were to create financial stability, customer confidence and to enhance economic growth (Hussein, 2016), judging from how customers lost their investments through collapsed financial institutions and massive nation-wide panic withdrawal cases observed, the question remains whether public confidence in the financial sector has improved or otherwise following the crisis/reforms. From both theory and empirical studies, public sentiments and confidence levels are intrinsically intertwined with many financial stability indicators regarding saving and investment behaviours (Boyle et al., 2015; Cull et al., 2012; Delis & Mylonidis, 2015; El-Attar & Poschke, 2011; Guiso et al., 2008). Empirical studies conducted by (Allen et al., 2016; De Jonghe, 2010; Han & Melecky, 2017) established that higher public confidence levels in banks improves financial inclusion, financial stability and reduces exposure to systemic risk. Thus establishing the levels and understanding the dynamics of public confidence in financial institutions following crisis and strong regulatory response are crucial for financial and economic growth strategies and forecasts. Even though the importance of public confidence in financial institutions is recognized by researchers and policymakers, little is known about the combinations of factors that affect trust (Chernykh et al., 2019). In Ghana (Ayanou et al., 2014; Oduro et al., 2019; Sarpong, 2018) studied the financial sector in one way or the other, rigorous studies that focus on public confidence in financial institutions are lacking. Most studies which utilise ordinal data in the assessment of confidence levels in the financial sector often resort to ordinal or multinomial regression models without addressing the proportional odds assumption underlying the former. In this study, the partial proportional odds (PPO) model was applied to address non-parallelism of some of the independent variables in explaining levels of confidence in the Ghanaian financial sector.

### *1.2 Related Studies*

Confidence in financial institutions is viewed as an important factor for sustained stability and growth of a country's financial sector and economic development in the long run. This view has empirical groundings; studies have evidenced that economic downturns and bank runs co-move with weak public confidence in banks (see Guiso et al., 2004; Owens, 2012; Stevenson & Wolfers, 2011); and through contagion, a declining public confidence leads to a full-blown crisis in the financial sector (Miao & Wang, 2015) as observed in Ghana's recent crisis which was exacerbated by panic withdrawals. Again, public confidence can ensure that financial institutions have successful operations and development while making provision for continuous and higher consumer and banking co-operations (Jurevičienė & Skvarciany, 2013).

Extensive studies on confidence in the financial sector mainly in banks have been conducted especially for developed and transitional economies. Majority of these researches estimate confidence levels and explain them by socio-demographic, economic and institutional factors (see for example, Dutch Banking Association [DBA], 2017; Fungáčová et al., 2019; Jansen et al., 2015). Others have focused on comparative studies within and across countries (see Afandi & Habibov, 2017; Fungáčová et al., 2019; Hussein, 2016; Knell & Stix, 2015; Mosch & Prast, 2010; Osili & Paulson, 2014); while very few have explored the role of bank-specific characteristics on public confidence (Carbo-Valverde et al., 2013; Chernykh et al., 2019).

Through their bank confidence monitor in 2017, DBA revealed that 18% of customers were having high confidence in banks, 57% had neither high nor low confidence in the sector, while 25% had confidence. In that study, young people between the ages of 18 and 34 had the highest confidence with women having relatively higher confidence than men (DBA, 2017). Jansen et al. (2015) studied the decline in trust in Dutch banks and concluded strong association between negative news from the media and stock markets and the decline. In Fungáčová et al. (2019), factors such as individual's level of income, education, religious and political values, gender, age and access to media were significant in explaining trust. They indicated that women tend to trust banks more than men while trust in banks tends to increase with income, but decrease with age and education.

In comparing the confidence levels of customers in Islamic banks and conventional banks, Hussein (2016) reported that in general, customers had higher confidence in Islamic banks than conventional banks because they were more capitalized. Consumers' confidence in Netherlands' financial institutions was said to be lowered sharply than other countries in 2000 – 2005 according to Mosch and Prast (2010).

Applying cointegration analysis, Drobot (2015) studied consumer confidence and household deposits and found that consumer confidence and household deposits were sharing a long – run equilibrium and that there was

negative relationship between consumer confidence and household deposits.

Applying two alternative measures of public confidence in banks, constructed by using an aggregation of bank clients' opinions, Chernykh et al. (2019) showed that public confidence in individual Russian banks strongly associated with the overall financial health of the banking industry. In Carbo-Valverde et al. (2013), it was concluded that aggregated bank-specific qualitative characteristics were the major determinants of public trust in financial institutions by Spanish households during the global financial crisis.

Above studies indicate among others that public perception of and confidence in financial sector are explained by both the sector's stability indicators and individuals' experiences, demographic and socio-economic factors. Understanding these play significant role in framing policy measures for improving stability in the financial sector.

## 2. Study Area and Methodology

### 2.1 Study Area

The study was conducted in Asante Mampong municipality of Ashanti region in Ghana. Mampong serves as the administrative capital of the municipality. The Municipality is about 52km away from Kumasi, the capital of Ashanti region and shares boundaries with Sekyere south district, to the East by Sekyere Central and the North by Ejura Sekyidumasi Municipal (MoFA, 2012).

The municipality hosts a number of financial institutions that help and support the varied socio-economic activities of the people in the municipality. Some of these institutions are the GCB Bank, NIB Bank, GN Bank, Otuasekan Rural Bank and Kwamanman Rural Bank at Kwamang in the Sekyere Central District with an agency in Mampong and other Microfinance institutions in the municipality (Ministry of Finance [MoF], 2018). The municipality also has variety of economic players in both the formal and informal sectors of the economy and provides a fair socio-economic strata-mix for the study of confidence levels in financial institutions following Ghana's financial sector crisis and its responsive measures.

### 2.2 Sampling and Description of Variables

A total of 384 (valid questionnaires) of 400 sampled respondents from both the formal and informal sectors of Mampong municipality were used for the study. The formal sector in this study was defined to cover public and private sector workers who are salary earners. The informal sector referred to self-employed and casual workers; such as market traders, shop owners, artisans and small-holder farmers operating in the municipality. Applying simple stratified random sampling procedure based on good practices (rule of thumb- over 10%) the 400 sample size selected for an estimated 3500 customers of FIs (53% and 47% for formal and informal sectors respectively), the sample was made up of 184 and 200 valid units for the informal and formal sectors respectively. The quota for each stratum was informed by the sector's level of importance in financial engagements. In Ghana the formal sector workers have deeper access/engagements (personal money transfers/transactions; loans and credit utilities; salary payments and other statutory deductions) to financial services than those in the informal sector. They were therefore apportioned 53% of the 400 (a 5-6% difference). The data were collected using a well-designed open and closed ended questionnaires administered through self and personal interviews. Data covered socio-economic characteristics and perceptions of respondents about the financial sector; and respondents' previous experiences and engagements with financial institutions in the country. Table 1 gives a summary of major variables captured and used in the study.

Table 1. Variable description

Variables	Description	Measurement
Age	Age of respondents in years	Years
Income	Monthly income earnings of respondents	Ghana cedi
Education	Years of Education	Years
Duration	Duration as committed customer to your financial institution in months	Months
Confi-Level	Level of confidence respondents have on financial institutions of the country	Rank ordered: Very confident = 1, Confident = 2, Somehow confident = 3, No confidence = 4
Gender	Sex of respondents	Dummy: Male = 1, Female = 0
LostInvest	Investment lost through any financial institution	Dummy: Yes = 1, No = 0
InvestStatus	Current investment status of respondents	Dummy: Have investment = 1, No investment = 0
FSCAware	Respondents' awareness of the Financial sector crisis/reforms	Dummy: Aware = 1, Not aware = 0

Source: Field Survey, 2019.

### 2.3 Theoretical Framework and Model Specification

In addressing the major research objective, that is, assessing confidence levels and to ascertain the factors that explain the levels among respondents in the study area, four levels of confidence in the Ghanaian financial sector were defined. Thus, very confident, confident, somehow confident and no confidence categories were presented to respondents. In this respect the dependent variable is defined as an ordinal variable with four categories. To explain a qualitative response dependent variable such as one defined in this study, an ordered logistic/probit regression model ensues, given that fundamental assumptions under such models hold (Green, 2003; Long & Freese, 2014; Williams, 2006; 2016). Thus, if  $Y$  represents a random variable which takes one of  $J$  possible values  $\{0, 1, 2, \dots, J-1\}$  and where there exists an order to these  $J$  responses, then an unobserved latent variable  $Y^*$  exists and it is determined by equation (1):

$$Y^* = X\beta + \varepsilon \quad (1)$$

where  $X$  is a  $1 \times K$  vector of explanatory variables;  $\beta$  is a  $K \times 1$  vector of parameters and  $\varepsilon$  is a mean zero random error term. In special cases the variance of the error term can be allowed to vary in a heteroscedastic specification (see Carroll, 2016). If we define  $\tau_1 < \tau_2 < \dots < \tau_{j-1}$  to be threshold parameters that determine the observed outcomes, then:

$$\begin{aligned} Y=0 & \quad \text{if } Y^* \leq \tau_1 \\ Y=1 & \quad \text{if } \tau_1 < Y^* \leq \tau_2 \\ & \quad \text{M} \\ Y=j-1 & \quad \text{if } Y^* > \tau_{j-1} \end{aligned} \quad (2)$$

Hence the probabilities of the observed outcomes are defined as:

$$\begin{aligned} P(Y=0) &= P(Y^* \leq \tau_1) = P(\varepsilon \leq \tau_1 - X\beta) \\ P(Y=1) &= P(Y^* \leq \tau_2) - P(Y^* \leq \tau_1) = P(\varepsilon \leq \tau_2 - X\beta) - P(\varepsilon \leq \tau_1 - X\beta) \\ & \quad \text{M} \\ P(Y=j-1) &= P(Y^* > \tau_{j-1}) = P(\varepsilon > \tau_{j-1} - X\beta) \end{aligned} \quad (3)$$

Where  $F$  is the assumed cumulative distribution function (cdf) for the error term in the general settings ( $\tau_0 = -\infty$  and  $\tau_j = \infty$ ), then equation (4) holds:

$$P(Y=j) = P(\varepsilon \leq \tau_{j+1} - X\beta) - P(\varepsilon \leq \tau_j - X\beta) = F(\tau_{j+1} - X\beta) - F(\tau_j - X\beta). \quad (4)$$

For the Generalized Ordered Logit (Gologit) specification we obtain equation (5) (see Williams, 2006):

$$P(Y_i > j) = \frac{\exp(\alpha_j + X_i\beta_j)}{1 + [\exp(\alpha_j + X_i\beta_j)]} \quad j = 1, 2, \dots, J-1. \quad (5)$$

The ordered logit model (Ologit) is a special specification of equation (5), in which the beta coefficients are the same for each  $j$  category outcome. In the partial ordered logit model or the partial proportional odds (PPO) the number of betas falls in between that of the Gologit and the Ologit where betas for variables that violate the proportional odds assumption are estimated for each of the  $j-1$  response categories. The PPO model was applied in this study using the `gologit2` package of Williams (2006). Yee (2019) also provides a broader and more flexible modelling framework for categorical data analysis via-VGAM package in R statistical software (see Abunyuwah, 2020). Based on the above model, the dependent variable which is an ordered variable with four categories was explained by respondents' socio-economic, demographic, experience, educational and investment characteristics of respondents (see table 2).

## 3. Results and Discussions

### 3.1 Descriptive Statistic of Variables Included in the Models

Some selected socio-economic variables that were hypothesized to influence the confidence levels of respondents on financial institutions of Mampong municipality are summarized in table 2. Ratio variables are described with minimum, maximum, mean and standard deviation whilst categorical variables are summarized into frequencies and percentages.

Table 2. Descriptive statistics of variables included in the models

Variables	Number	Minimum	Maximum	Mean	Std. Dev
Age in years	384	19	66	36.60	8.87
Monthly income	384	130	8000	1010.21	980.88
Education in Years	384	0	28	12.14	6.18
Duration of engagement with financial institution in months	384	3	120	36.21	21.60
Categorical Variables	Label	Frequency	Percentage		
Level of confidence in financial institutions	Very confident = 1	13	3.4		
	Confident = 2	51	13.3		
	Somehow confident = 3	142	37.0		
	No confidence = 4	178	46.4		
<b>Total</b>		<b>384</b>	<b>100</b>		
Gender Distribution	Male = 1	259	67.4		
	Female = 0	125	32.6		
<b>Total</b>		<b>384</b>	<b>100</b>		
Lost Investment	Yes = 1	209	45.6		
	No = 0	175	54.4		
<b>Total</b>		<b>384</b>	<b>100</b>		
Current investment Status	Have investment = 1	135	35.2		
	Have no investment = 0	249	64.8		
<b>Total</b>		<b>384</b>	<b>100</b>		
Awareness of crisis/reforms of the Financial Sector	Aware = 1	262	68.2		
	Not aware = 0	122	31.8		
<b>Total</b>		<b>384</b>	<b>100</b>		

Source: Field Survey, 2019.

With reference to table 2, the mean age of the respondents was about 37 years with minimum and maximum ages of 19 and 66 years respectively. This mean age of workers in the municipality is an indication that the municipality has an economically active working class which is vital for economic growth and development. The workers were earning minimum of GHC 130.00, mean monthly income of GHC 1010.21 and as high as GHC 8000.00 per month. This means that income disparity in the municipality is wide, possibly due to differences in educational levels and job profiles of respondents. In terms of years of formal education, table 2 depicts a low average (about 6) number of years in school; with some reporting no formal education and maximum years of formal education as 28 years. Duration of engagement as customer with a financial institution was between three and 120 months with a mean of 36.21 months.

With respect to the categorical variables, the confidence level of the customers in the financial institutions was ranked ordered from 1 to 4 with 1 representing those that indicated 'very confident' in the financial institutions of the country to those of 'no confidence' in the institutions represented by 4. From table 2, most of the respondents (46.4%) reported having no confidence in the financial institutions of the country, about 37% were somehow confident in the sector, 13.3% were confident whereas only 3.4% were very confident in the sector. The observation of higher "no confidence" following crisis is not unexpected; similar results were reported in (DBA, 2017; Mosch, & Prast, 2010). In terms of gender, majority (67.4%) were males while the females constituted 32.6% of the respondents of the study. The male dominance is a reflection of their high representation in the formal, among artisans and service sectors of the municipality. It was also realized that about 45.6% of the respondents have ever lost some money/investment in one way or the other through the actions and/or inactions of a financial institution although 54.4% of the respondents indicated they have never had any losses.

Irrespective of the panic withdrawals during the crisis, 35.2% of the respondents were currently having investment packages with financial institutions in the municipality while 64.8% of the respondents claimed that they were not having any current investment package with any financial institution. Surprisingly, despite the fact that the financial sector in Ghana has been in crisis and under reforms for the past 7 and 3 years respectively, 31.8% of the respondents claimed they were not aware of the crisis and the associated reforms in the financial sector. About 68% of the respondents on the other hand indicated that they were of the crisis/reforms of the Ghanaian financial sector.

### 3.2 Partial Ordered Logit Regression Analysis

In ordinal dependent variable analysis, the ordinal logistic regression model (Ologit) which assumes a parallel line or proportional odds is often used. This assumption is however more often violated, in which case the model becomes inappropriate (Brant, 1990; Bratsberg, 1995; Williams, 2006). A violation of the proportional odds assumption calls for the adoption of the Partial Proportional odd model (PPO) in modelling ordinal data (see Harrell, 2001; Williams, 2006). Following Williams (2006), Brant test which jointly tests all the variables as well as a test for each variable separately to see whether all or any variable violates the proportional odds assumption was used in this study.

Table 3. Brant test of parallel regression assumption

	chi2	p>chi2	Df
All	35.45	0.001	14
Gender	1.37	0.503	2
Age	3.06	0.216	2
Education	2.31	0.312	2
Income	-5.58	0.000	2
Duration	16.78	0.000	2
LostInvest	1.85	0.396	2
InvestStatus	9.60	0.008	2
FSCaware	3.61	0.165	2

Source: Author's Estimation.

The results of the Brant test in table 3 indicate that the assumption of the parallel lines was violated in the model. The joint test indicates that all the variables together violated the assumption of parallel lines. Income, Duration and InvestStatus seriously violated the parallel lines assumption. If the parallel lines assumption is violated, the model could still be used but this may give incorrect, incomplete, or misleading results. Another option is to use multinomial logistic regression model (Mlogit) which allows for constraining variables that violate the proportional odds assumption. This however provides many parameters which make results interpretation confusing and loss of ordinal quality of the independent variable. As a result, the PPO model which provides a substantially better fit to the data than the ordered logit model does while at the same time being much more parsimonious than other alternatives (Williams, 2016), was used. In applying partial proportional odds model (PPO) in this study, *the goodness of fit was evaluated in comparison with the ordinal and multinomial logit specifications using the Akaike's Information Criterion (AIC)*. As presented in table 4, for the ordered, multinomial and the partial ordered logit models AIC values of 815.263, 799.0438 and 796.7136 were obtained respectively. This further supports the choice for the partial proportional odds (PPO) model since it had the smallest AIC value.

Table 4. Akaike's information criterion for models

Model	Observations	Df	AIC
Ologit	384	10	815.263
Mlogit	384	24	799.0438
PPO	384	24	796.7136

Source: Author's estimation, 2019.

### 3.4 Results of Partial Proportional Odds Model

Three models were estimated here in accordance with the four rank-ordered confidence levels used to define the dependent variable. The models were estimated using gologit2 (Williams, 2006). The likelihood ratio chi-square value of 92.96 is significant at 1% (0.000) level of significance implying that the model is best fit and the null hypothesis of no effect of the selected explanatory variables is rejected. Thus the selected regressors have a composite effect on the variations in the levels of confidence reported by respondents of the study. Column three of table 5 displays the odds ratio, which is used for interpretation of intensity of the effects of the explanatory variables on the confidence levels.

The results for the 'very confident' category are presented in panel one and this is contrasted with the 'confident', 'somehow confident' and 'no confidence' groups. The signs on the coefficients provide an indication of how likely or otherwise a respondent will be very confident in the financial institutions of the country.

Table 5. Partial proportional odds model results

Levels	Coeff.	Odds Ratio	Std. Err.	z	P> z
<b>Very Confident</b>					
Gender	0.1767525	1.193336	0.21582	0.82	0.413
Age	-0.0088642	0.991174	0.0116294	-0.76	0.446
Education	-0.0119808	0.98819	0.0174533	-0.72	0.504
LostInvest	0.573417***	0.563596	0.2188665	2.62	0.009
FSCaware	0.905809***	2.473933	0.2304481	3.93	0.000
Income	0.0010502	1.001051	0.0007714	1.36	0.173
Duration	-0.0434768**	0.957455	0.0172667	-2.52	0.012
InvestStatus	-0.1872631	0.829226	0.6639776	-0.28	0.778
<b>Confident</b>					
Income	-0.0002996*	0.9997	0.0001271	-2.36	0.018
Duration	-0.027843***	0.972541	0.0061515	-4.53	0.000
InvestStatus	-1.03748***	0.354347	0.3105878	-3.34	0.001
Constant	2.887282***	17.94447	0.6745724	4.28	0.000
<b>Somehow Confident</b>					
Income	0.000187*	1.000187	0.0001043	1.79	0.073
Duration	-0.010909*	0.98915	0.0055298	-1.97	0.049
InvestStatus	0.0896386	1.093779	0.2337198	0.38	0.701
Constant	-0.7043410	0.494434	0.6268209	-1.12	0.261

Note. Significant at \*10%, \*\*5%, \*\*\*1% level. FSCaware = Financial Sector Crisis/Reform awareness, InvestStatus = Current Investment Status, LosInvestment = Lost Investment. LR chi2 (13) = 92.96, Prob > chi2 = 0.0000 and Pseudo R<sup>2</sup> = 0.1093.

In the same direction, the results in block two (confident) contrasted the ‘very confident’ and ‘confident’ groups with the ‘somehow confident’ and ‘no confidence’ groups whereas the results in the last panel contrast the ‘very confident’, ‘confident’ and ‘somehow confident’ groups with the ‘no confidence’ group which forms the reference outcome. Again, as presented in table 5, a total of 14 parameters (excluding the constants) were estimated after constraining those variables that did not violate the proportional odds assumption. Thus, Gender, Age, Education, LostInvest and FSCaware did not appear in the second and third panels as they have same coefficients across the three category blocks. However, Income, Duration and InvestStatus had their coefficients varying across the  $J-1$  equations in accordance with the specification and structure of the partial proportional odds (PPO) model (Brant, 1990; Bratsberg, 1995). Out of the five variables that passed the proportional odds assumption two, LostInvest and FSCaware appeared significant while Gender, Education and Age were insignificant in explaining confidence levels of respondents. The above findings though contradicts Fungáčová et al. (2019) and DBA (2017) in terms of their levels of significance, they share same directional effects. Thus, their observation that women tend to trust banks more than men and that trust in banks decreases with age are similar to the implication of the positive and negative coefficients reported above.

The results in table 5 are interpreted by considering the current category and the least coded categories as the base groups, when viewed as binary logit. This means that the  $m^{\text{th}}$  panel results are equivalent to the results of a binary logistic model where categories 1 to  $m$  are coded as zero or base outcome and  $m+1$  to  $J$  are often coded as 1. By this coding, a positive coefficients or odds ratios that exceed 1 provide an indication that higher values of an explanatory variable increase the probability that a respondent is more likely to belong to the higher ranked category, thus having no confidence in financial institutions in the country. Contrary, negative coefficients or odds ratios that fall below 1 imply that higher values of the explanatory variable increase the odds of being in the current or lower ranked categories (Williams 2006), in our representation, towards very confident category.

From table 5, the variable LostInvest has a coefficient of (0.573417); appears significant and do not violate the parallel lines assumption. This, as expected, indicates that respondents who have previously lost their investment in any financial institution are less likely to be very confident in the financial institutions of the country. This finding is supported by those of Afandi and Habibov (2017), Knell and Stix (2015) and Osili and Paulson (2014). The FSCaware variable is positive implying that customers who are aware of the financial sector crisis/reforms are about 2.5 times less likely to be very confident in the financial sector than being confident, somehow confident or have no confidence. In their study, Jansen et al. (2015) studied the decline in trust in Dutch banks and found that the decline was associated with negative news from the media, similar to the Ghanaian situation where negative news dominated the finance sector news. This however contradicts the findings of Fungáčová et

al. (2019), regarding access to television news.

In the second and third panels, as stated earlier, only estimates for variables that failed the parallel line assumption are presented. Here, Income switched in both intensity and direction of influence. It appears slightly significant, under 10% level of significance and takes negative sign in panel 2 and switches back in sign to positive. The indication is that respondents with higher monthly income levels are in general more likely to have intermediate levels of confidence; that is, increasing income levels means customers become more cautious in taking more extreme confidence positions ('no confidence'; and less likely to express 'very confident'). This contrasts Fungáčová et al. (2019), who reported that trust in banks tends to increase with income. Similar, general results were deduced in Knell and Stix (2015) and Alesina and La Ferrara (2002). "Duration" is negative (-0.0434768) in the first panel, indicating that customers who have had longer periods of engagement (in months) with their financial institutions are less likely to be of 'no confidence, somehow or confident' in the financial sector of the country. It also maintains its negative sign across the three confidence category levels, but with reduced degree of impact towards the 'no confidence' category. Thus the longer one engages with a financial institution, the less intense the confidence level becomes. Current investment status, InvestStatus, which appeared insignificant in panel 1 obtains a significant coefficient of -1.03748 in the second panel and switches as insignificant in the third panel, with a positive sign. The deduction from cointegration analysis of Drobot (2015) that households deposits have inverse effect on confidence in banks, contradicts current observation in the direction of effects. The complex form of effects observed from the PPO model implies that customers who currently have investment with financial institutions tend to be less associative with the extreme levels of confidence in the financial sector of the economy. They are more likely to express 'confident' than 'somehow confident' or 'very confident' in the financial sector.

#### 4. Conclusion

This paper examined the confidence levels of respondents in the financial institutions of the country and utilised PPO in explaining the observed variations by selected regressors. About 46.4% reported not having confidence in the financial institutions of the country, about 37% were somehow confident in the sector, 13.3% were confident whereas only 3.4% were very confident in the sector. Factors such as Gender, Age, LostInvest and FSCaware did not violate the PPO assumption, presenting direct interpretation of their effects on the levels of public confidence. Income, Duration and InvestStatus had varied effects across various levels of customer confidence categories. The complexities associated with these variables in respect of their respective effects on respondents' levels of confidence in the financial institutions were unveiled by the PPO model.

Financial institutions are recommended to strengthen their relationship with customers by providing improved services and policy measures that secure customers investment/savings to ensure sustained and increased levels of confidence. This is informed by high representation of "no confidence" and "somehow confidence" groups and a higher losses of savings (46% for LostInvest) revealed by the study. Financial education should be intensified to enlighten people on the financial rules and regulations as well as the importance of BoG's reformed measures. Thus, the inverse relationship established between FSCaware and confidence levels means that the depth of outreach of BoG's reformed measures to customers is shallow.

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