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The Effect of Marital Status and Gender on the Demand Housing Finance Choice of Public Sector Workers in Ghana

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Abstract:
Despite many efforts by the government of Ghana and the key players to boost the housing industry it remains in its infancy. The purpose of this study is to identify the knowledge gap within the housing industry by analysing the marital status and gender of public sector workers.
Mixed methods research is the right choice as three hundred and eighty-four (384) public sector workers were surveyed using comprehensive questionnaire completed with information gathered from qualitative sources.
The test found that marital status has effect on Public Sector Workers choice of housing finance therefore the null hypothesis is rejected on the other hand get has no effect on the choice of demand housing finance of Public Sector Workers therefore the null hypothesis is accepted.
Players in the demand housing finance industry must invest in research to find out why marital status affect choice of demand housing finance and how to meet the requirement of Public Sector Workers.
This is the first time in Ghana public sector workers' marital status and gender have been surveyed comprehensively in relation to demand housing finance loan. This research did not follow the existing trends of focusing more banking industry but rather the users of the product. This knowledge raises many questions as to why the existing demand housing finance schemes have been unsuccessful in Ghana.

1. INTRODUCTION

Housing is one of the basic necessities of life. It plays a significant role in sheltering individuals, families and communities. This study will focus on housing demand finance for the public sector workers in Ghana in relation to their income. The study will examine the general income levels within the public sector and their ability to acquire homes.
The population of Ghana stands at 30.8 million with the economic active workforce of 11,541,355 out of which 9,990,237 are employed (Ghana Statistical Service, 2021). Out of the total employed population only 2,364,348 pay taxes as at august 2021 with 1,643,839 SSNIT tier 1 contributors and 2,364,348 Tier 2 pension contributors (Ministry of Finance, 2021).
Public sector workers are one of the lowest earners in Ghana. Available data show that the 886,906 civil and public sector workers make up about 50% of total formal workforce registered with SSNIT in Ghana. The average annual salary as quoted in the 2022 Budget is GHS34,672.00. Per the 2020 single spine salary structure, the universal salary structure used for majority of public sector workers quotes the lowest public sector salary as GHS3300.54 and the highest public sector salary as GHS79,884.41 per annum. This translates into GHS275-GHS6657 per month which puts majority of public sector workers in a

disadvantage position when applying for a mortgage facility. The salary structure clearly denies nearly half of the formal workers from participating in the financial sector housing demand finance. This has policy implications if the industry has to be developed. The base of the pyramid theory recognises such a large market as an opportunity to develop a product. Income of public sector workers cannot be ignored by any serious policy maker as it is a formal market that can help accelerate economic development through its share scale.

Research Question and Hypothesis

Does gender and marital status influence the choice of demand housing finance among public sector workers in Ghana?

To answer the question, hypothesis 1a and 1b below was used:

Hypothesis 1a (Ho1). The marital status of public sector workers has no effect on their decision to acquire housing demand finance.

Ha1: Married public sector workers are more likely to acquire homes with housing demand finance than unmarried public sector workers.

Hypothesis 1b (Ho1). The gender of public sector workers has no effect on their decision to acquire housing demand finance.

Hb1: Male public sector workers are more likely to acquire homes with housing demand finance than female public sector workers.

2. RESEARCH APPROACH

A research study requires that relevant research design is selected. Research design entails quantitative, qualitative and mixed methods approaches that offer a precise direction for procedures (Creswell, 2009, p.41). It is the plan that is used to guide the research during data collection and analysis (Churchill, 1999, p. 98). The rational underpinning a research design choice is premise on the research question, research objectives and uniformity with the research philosophy (Saunders et al. 2007). The research design imposes on the researcher to elect and have an overall plan of how the study will answer the research question framed in the study. It also demonstrates to the reader how the study is to be carried out in order to find answers to the research questions. It is imperative to note that the right research design assist the researcher to undertake an efficient and effective study (Malhotra and Birks, 2006) by outlining the data to be collected, how it should be collected and the sampling process to use for the research in order to be able to answer the research questions and achieve the research objectives.

Mixed Method

Usually, there are three types of research methodology quantitative, qualitative, and mixed methods. Quantitative is data driven while qualitative is driven by observation and interviews. Mixed methods uses a mixture of both. Social science relies heavily on qualitative driven data analyses but could use a combination of both quantitative and qualitative to take advantage of all the tools available in a one collective framework. An ideal Mixed Methods comprises the benefits of both methods (Johnson, Onwuegbuzie, & Turner, 2007): Quantitative analyses uses descriptive and inferential statistics, whereas qualitative analyses produce expressive data that provide descriptive details usually in a narrative form to investigate the research objectives. While quantitative data may be collected by means such as survey in the form of self-administered or electronic questionnaire, qualitative data are collected by interview means with one on one, focus groups with either structured or semi structured, and other forms (Creswell, 2013).

Mixed Method hypotheses are different from only quantitative research questions. The source of information to prepare the hypothesis must come from both quantitative and qualitative data to be used to develop hypothesis in such a way that it has the potential to answer the research questions in an integrated way. Hypotheses should be developed in a priority and be both logical and sequential research questions (Onwuegbuzie & Leech, 2006).

The Integration of quantitative and qualitative data is a complicated exercise and must be done with care to ensure that the objective of the study in achieved. Data integration happens as soon as quantitative and qualitative are joined in a data set. There are various ways to integrate the two approaches, including triangulation, and the mixed methods matrix (O'Cathain, Murphy, & Nicholl, 2010). However, appreciating the complete reasoning for using a Mixed Method and the best way to combine the approaches in practice can help reduce the complex nature of mixed method data integration (Bryman, 2006).

There are many forms of Mixed Methods designs, but for the purpose this study, four designs are mentioned:

The *sequential explanatory* types start with collection of quantitative data then qualitative data is collected last to finalise the method.

The *sequential exploratory* design integrates both quantitative and qualitative data for the research.

The *sequential transformative* approach has no preference for sequencing of data collection and emphasizes theory.

Concurrent triangulation is seen as the preferred method as it ensures cross-validation and has just one data collection point. This is akin to this study.

The *concurrent transformative* approach is theory focussed which directs and allows study of phenomena from different fronts.

Mixed method approach is useful for conducting detail research by delivering meaningful interpretation of the data and phenomenon that is examined (Teddlie and Tashakkori, 2002). One more strength of the mixed method is the vigorous nature of the approach of exhibiting the strengths of both means. If the research design is planned properly the data front each type can complement the other in other to arrive at a good research product which has the potential to be applied to many research types. Nonetheless, it must be noted that interpreting data using the mixed method approach is complicated and time consuming given that the data and interpretations are often intellectual exercise. It must be noted that conducting mixed method research entails training and preparation of the methodology tools to be deployed. Researchers who are used to either quantitative or qualitative methods go through some learning curve to master the mixed methods approach. Relying on the theory-based and evidence-based research designs will improve one's understanding and interpretation of the data.

Research questions and aims is what identifies whether mixed method should be used or otherwise. A mixed methods design is suitable for answering research questions that none of the traditional methods could answer alone. Mixed methods is the best approach to resolve the challenges that are associated with qualitative and quantitative research data. It makes the research flexible for the researcher to apply any appropriate tool in the execution of the study. Using only one approach could limit the presentation of some of the findings unlike the mixed method approach that allows the best means possible to answer the research questions. Mixed methods has the potential to enable better intellectual collaboration and augment the understandings of researchers as diverse viewpoints brighten the research topics.

The practise of mixing methods in one research study has the potential to increase the already complex nature of academic research. The diverse mixed method tools at the disposal of the researcher may require more resources and extensive training to execute the research task. Mixed method research paradigms requires different approaches to sample selection, data collection,

The post-positivist view places weight on using a hybrid design, which is a combination of both quantitative and qualitative approaches, as the hybrid method in research aimed at exploring objective and subjective phenomena. Though, pragmatism as a paradigm is frequently used and suggested for mixed methods research (Morgan, 2007; Creswell, 2009; Creswell and Plano Clark, 2011). Post-positivism is selected because this paradigm stresses to investigate the phenomena objectively assisted by both quantitative and qualitative data (Guba and Linciln 1994; Philips and Burbules, 2000). The post-positivist approach prioritises quantitative data and emphasises to strengthen their finding with the help of qualitative data (Wildemuth, 1993). Similarly, this research dwells more on quantitative data and uses qualitative data to support the findings. Mixed methods was categorised as a pragmatic research approach that suits post-positivist epistemology. Perhaps the most arguably appropriate example of empirical research based on the post-positivist paradigm is Wildemuth (1993). In the first stage of the study, the researcher used positivist data to investigate the problem, then interpretive data is used to further explore the why, when, and where the problem occurred and how could it be addressed based on the views of the participants.

Rarely, it is argued that pragmatism is the best paradigm for mixed methods design. However, mixed methods research does not practice the exclusive rights over the use of pragmatism at the philosophical basis of research (Denscombe, 2008). There are many mixed methods research which show that contemporary mixed methods studies have been conducted without clearly admitting that the exercise relates to the mixed methods approach or its practical philosophical premises (Bryman, 2006). Bryman (2006), with the help of content analysis of the results of 232 journal articles that used both the quantitative and qualitative data, it was discovered that about 27% did not mention why they had selected the mixed methods approach. In this study, the use of mixed method is based on the research questions and the nature of the topic which is not pure science but social science in nature where quantitative data as well as qualitative data are relevant to achieve the research objectives.

2.1 Research Approach Adopted in this Research

Mixed methods research is the right choice as three hundred and eighty-four (384) public sector workers were surveyed using comprehensive questionnaire completed with information gathered from qualitative sources. The mixed method allowed the researcher to put findings in context and interpreting the quantitative results with qualitative data which is targeted at adding a richer feel to the findings and conclusions.

Mixed research may be conducted with experimental, Simulation and Surveys researches, correlational study and Multivariate analysis (Queiros et al., 2017). This research was conducted using surveys to answer the research questions through a set of hypothesis.

The researcher tested the hypothesis through a mixed method approach, in keeping with the understanding of the methodological implications of a post-positivist worldview, with a focus on quantitative methods for description and regression analysis and qualitative methods for interpretation. To this end, the researcher adopted an approach akin to what Creswell (2009) calls a sequential explanatory mixed methods research design. This involved providing an overview of housing demand finance in Ghana, informed by the collection and analysis of primary quantitative data on public sector workers from all the

various sectors of the economy. Recognising that these quantitative methods are better at describing correlations than at explaining the behaviours of the underplaying social actors involved, we then examined these general quantitative patterns through in-depth qualitative fieldwork and industry document analysis. Our aim is to explain rather than merely describe the existence of the various housing demand finance products in the market. The quantitative data allowed us to reveal large scale patterns in housing demand finance among public sector workers across all sectors in Ghana a task not attempted by previous studies. However, to confidently answer the central question of the best housing demand finance model that fits public sector workers, the researcher could not limit himself to the existing products on the market but needed to look at successful products in other countries in industry publications that fits into the characteristics of the public sector workers in Ghana. For this reason, the data collection also covered high level policy makers (Dexter, 2006; Goldstein, 2002) in most of the government ministries, departments and agencies. This approach allowed the researcher to recognise the correlative patterns or factors among public sector workers' choice of housing demand finance choice. In this sense, taking a mixed methods approach allowed the researcher to pursue distinctly post-positivist social science explanations for the phenomena on interest.

2.2 Surveys

Survey is a research technique that permits the gathering of data directly through questions in various forms from person's participating in the research (Queiros et al., 2017). It is very popular with quantitative techniques research, as the information gathered from the questions relates to the opinion, behaviours and perceptions about a particular phenomenon.

Surveys are triggered when individuals or organisations have the need for information on a group including customers and there is no existing data or the data available is insufficient for the purpose. Based on the required information a survey will have to be planned to achieve a certain aim before it is deployed to make it meaningful. Survey is the best technique for this research as it is aimed at collecting information from public sector workers and their housing demand finance choice and also describe, compare, explain or predict their housing finance choice, and also the attitudes or behaviours towards the public servants housing loans scheme.

Survey study is basically a systematic investigation conducted through a survey technique such as using questionnaire, online or telephone survey. In summary, it is a style of research undertaken by administering surveys to respondents.

Surveys is a useful method of gathering views by sampling and discovering what people think about diverse situations and circumstances. Using a survey method implies gathering first-hand information from individuals affected by specific contexts. The paramount way to collect data about customers is to ask then directly. Companies collects relevant information of their company to create strategies to sustain their operations to keep their staff and customers happy. Good utilisation of information gathered from recipients can be used to generate competitive advantage and knowledge about a particular product or sector. The valuable nature of data surveyed from customers directly has the potential to determine the sustainability or extinction of any business.

The completion of valuable questions is instrumental to the success of the survey and the research study. To achieve this a researcher can undertake a pilot study to test the quality and relevance of survey questions.

Survey research is very suitable in primary research data collection. Survey for instance can be used by the PSHLSB to gather information about how their clients view their services vis a vis other housing

demand loan schemes which will be an ideal way to get first-hand information on suitability of its operations.

Such an exercise will provide the PSHLSB primary data from their clients (respondents) which will put them is a position to take the best decision for their clients and the organisation.

The most important justification for undertaken survey research is that it aids the gathering of the most authentic data sets for a logical investigation. Survey research has been the ultimate means of collecting first hand specific information from distinct respondents.

Surveys gives researchers the opportunity to pool different question types together making it easy for the collection of several data from respondents. A typical questionnaire will have a combination of open-ended and close-ended questions or direct and Likert scale answers. The advantages of using survey in this research is listed below:

It is economically feasible

Surveys are one of the most reasonable methods of collecting quantitative data that is currently available. Some questionnaires can be self-administered, making it a possibility to avoid in-person interviews as in this research where the questionnaire were self-administered. That means you have access to an enormous level of material from a large demographic in a fairly short period.

Some of these methods have no financial cost at all, relying on personal efforts to post and collect the information. Robust targeting is necessary to ensure that the highest possible response rate becomes available to create a more accurate result. The institutions to administer the questionnaire were carefully selected to have the needed effect on the research.

Surveys are a hands-on solution for data gathering.

Surveys are a hands-on way to gather information about something specific. You can target them to a demographic where the process can be managed in several different ways. Researcher can determine what questions get asked and in what format. You can use polls, questionnaires, quizzes, open-ended questions, and multiple-choice to collect info in real-time situations so that the response is immediately useful. Closed ended questionnaire was used in this instance after gathering sufficient academic and industry knowledge from literatures.

It is quick

Surveys provide immediate and comfortable outcomes because of software technology. It is common for this method of data collection to produce results in just some few days. The researcher did not have to acquire data from a company at a cost. Which means coding and analysis can start immediately.

Surveys provide opportunities for scalability

A well-constructed survey permits you to collect data from respondents of any size. Questions can be distributed to any target audience due to easy accessibility interms of transport and technology.

Multiple source data collection

When you create a survey to meet the desires of a demographic, then you have the aptitude to use numerous data points to collect from the various locations.

Adequate for immediate analysis

Most surveys are quantitative by design. This can enable immediate analysis which can produce quick outcome. Immediately the data was collected the researcher organised the data and started the analysis process with the coding and analysis.

Respondents are anonymous

The respondents of surveys have the option to remain anonymous. Most anonymous surveys are associated

with online data collection. This self-administered survey had the flexibility for respondents to remain anonymous.

Less time constraints

Compared to other research data collection tools, surveys have less time constraints. Questionnaires can be answered immediately for analysis to start. In this research the questionnaires were shared in the morning and collected before the close of business per each day by the researcher.

Any area can be covered.

A notable advantage to a survey is its ability to cover most topics are per the design of the questionnaire. Questionnaire that are kept short enhances completion rate. Long questionnaires frustrate some respondents which may lead to missing responses.

Disadvantages of Survey

Risk of dishonest answers

The risk of some people providing wrong answers. Some people may want to respond to questions they are not familiar with to satisfy the researcher. The researcher assured respondents that there is no right or wrong answer but their opinion is what matters. This was aimed at reducing this risk but also aware that it cannot be eliminated fully.

Unanswered Questions

some questions may be left unanswered for reasons such as no knowledge in the topic or the question is misunderstood. How to avoid deliberate unanswered questions is to use online questions that gives access to the next question after the current one is complete. In this study, the researcher ensured that the questions are clear and understandable by undertaking a pilot study to note the possible challenges and provided mitigation before the main research was conducted.

2.3 Sampling

Sampling has been defined differently by many authors. The preferred definition for this study is "the process of selecting a smaller group of participants to tell us essentially what a larger population might tell us if we ask every member of the larger population the same questions'' (Adwok, 2015, pp95).

Sampling plays a critical role during research studies. It is a fact that irrespective of how other areas like research questions, research design, data collection and analysis are done, an ill-conceived research sample could cause the research to lack authenticity, credibility and dependability. Sampling strategies should, whenever possible, identify inclusion and exclusion criteria to set boundaries on what item is selected and what is not selected from a given population of study (Mweshi and Sakyi, 2020, pp181).

It is mostly unrealistic and not cost effective to research the entire 800,000 plus public sector workers when they relatively have similar characteristics, therefore a sample of it is used to represent the population. The sample must have the characteristics of the target population. Sample is the amount of correctly extracted material from the lot. Sampling are broadly divided into probability and non-probability (Etikan et al 2016). With probability sampling types, each population has equal chance of being selected while with non-probability types subjective methods are used to decide which elements are elected. According to Marshall (1996) Quantitative researchers often fail to understand the usefulness of studying small samples, he found that the appropriate sample size for a qualitative research is the sample size that answers the research question. Some of the commonly cited probability sampling techniques include simple random sampling, systematic sampling, stratified sampling and cluster sampling, and that

of non-probability include purposive sampling, convenience sampling, snowball sampling and quota sampling.

The sampling process entails picking a small number of larger population to find information that ensures that the conclusion arrived at reflects the entire population (Hair et al., 2003). It guides the researcher to understand and develop the process and to identifying a hypothesis that needs to be investigated (Hair et al. 2003). As stated earlier, the two main types of sampling are probability and non-probability sampling. The probability sampling technique is widely associated with representative samples. Which is based on a carefully reasoning of the population in question, to upholding natural sciences and quantitative social sciences.

The probability sampling technique attempts to advance a perfect representative sample with apparent errors, drawing a sample from a large collection of cases i.e. a unit of analysis or case in a population (Neuman, 2014). Some frontiers including, geographic and temporal boundaries are utilised in this sampling technique. On the contrary, non-probability sampling is supposed to be a modest alternative in forming a representative sample. Non-probability sampling is the preferred choice when the study is faced with challenges such as cost, time and inconvenience. Most cases in non-probability sampling are usually seen as not a representative of the target population. Hair et al. (2003) described non-probability sampling as a process whereby the probability of each unit is unknown.

From the preceding, it is important that certain critical factors are considered before selecting an appropriate sampling design for this study. Hair et al. (2003) identified a number of critical factors to be considered by the researcher before selecting an appropriate sampling design, including a choice guided by the research objective, degree of accuracy of the research, availability of resources for the research, time frame for the study, knowledge of the target population and finally the scope of the study.

To be fair, unbiased and to give each item in a given population an equal chance of being selected, most researchers go for the scientific method of random sampling which sometimes for practical purposes is idealistic and far-fetched (Mweshi and Sakyi, 2020, pp181).

This research adopts probability sampling to enable the study adequately answer the research questions devoid of bias and also offering every public sector worker an equal opportunity to partake in the study.

The data collection phase of the research involved administering of three hundred and ninety survey questionnaire to answer the research questions. Parts of the questions relate to the housing demand finance, attitude of public sector workers and the PSHLSB loans scheme. Stratified/random sampling methods was used to select respondents from among public sector workers who have benefited or not benefited from the various housing demand finance schemes. Lynn (2019 pp254) identified Explicit Stratified Sampling ESS) and Implicit Stratified Sampling (ISS). ESS involves sorting the population elements into explicit groups (strata) and then selecting a sample independently from each stratum. ISS involves ranking the elements following some ordering principle and then applying systematic sampling, i.e. selecting every nth element. This research adopts ESS method by sorting the public sector workers into explicit groups or sectors referencing the Ministries, Departments and Agencies (MDA) categorisation stated in the Ghana 2022 budget and economic plan. The broad sectors are administration, economic, infrastructure, social and public safety. In addition, each sector is assigned an apportioned number which is selected randomly.

After choosing the appropriate sampling method for the study, the size of the sample must also be considered. Factors that affects the sample size are population, confidence level and cost benefit ratio (Oribhabor and Anyanwu, 2019). In considering the sample, care must be taken to ensure that it will adequately draw valid and generalised conclusions (Singh and Masuku, 2014).

The population for this study is the entire public sector workers of Ghana made up of 886,906 workers (MOF, 2021). The desired confidence level for this research is ninety-five percent (95%) which require a higher sample size for the required confidence (Noordzig, et al. 2010). It also means that if 95% confidence level is selected, 95 out of 100 samples will have the true population value within the range of precision specific (Singh and Masuku, 2014). The cost to benefit of this research is mainly the time and cost of the survey (Sukhatme,2008) as random method is used to select the sample. This research population is very large therefore requires a very large sample.

Many researchers have developed statistical formulas to determining sample size.

Irrespective of the several formulas developed for calculating sample size, most have capped the maximum sample size to 384 (Meyer, 1979); (Fox et al., 2007); (Taherdoost, 2017): Gill et al., 2010) and 400 (Singh and Masuku, 2014) for populations of 886,906 with 95% confidence level. The sample size of 390 was administered out of which 384 questionnaires were fully completed and used in this research. As public sector workers may share some identical characteristics made the sample size the ideal number. See table 2.1 below for sample size based on desired accuracy with confidence level of 95%.

Table 2.1: Sample size and Confidence Level

	95% confidence level
POPULATION	Sample Size
25000	378
50000	381
100000	383
250000	384
500000	384
1000000	384

Source: (Gill et al., 2010)

The Budget statement grouped the MDAs into five (5) groups namely Administration, Economic, Infrastructure, Social and Public Safety. The number of staff sampled to be surveyed per each sector was determined using the total staff strength per the sector over the total number of public sector workers. The sample per sector is further apportioned by the staff strength of each organisation within the sector. The total sample of three hundred and eighty-four respondents for the sectors are Administration- 23, Economic-9, Infrastructure-2, Social- 288 and Public Safety- 62. The respondents are randomly selected from each organisation per the quota limit. See Table 2.2 below:

Table 2.2: Distribution of 384 Surveys to MDAs in Ghana

SECTORS	SAMPLE					
Administration		EC	Audit Serv.	MOF	MOLGDRD	MOI
	23	2	1	2	16	2
Economic		MOFA	MOLNR	MOTI	MOTAC	MOESTI
	9	2	3	1	1	2
Infrastructure		MOSWR	MWRWH			
	2	1	1			
Social		MOE	MOELR	MOH	NCCE	MOELR
	288	195	1	90	1	1

Public Safety		MOD	JS	MOI	MONS	OAGMOJ
	62	13	4	42	2	1
TOTAL	384					

2.4 Data Collection

Data collection is the methodological route of accumulating information about a specific subject. Researcher has to ensure that data collected is complete in the process and done ethically in compliance with all legal instruments. A diversion will affect the accuracy of the analysis which may render the research irrelevant.

Data collection methods are purposefully selected to provide the data needed to answer the research questions and goals.

Data collection is a systematic collection of data by either observing or measuring for a research study. It allows the researcher to gain first-hand or original knowledge in a research problem. The researcher gathered data from both secondary and primary data. The data from the secondary data were data from the Central Bank, PSHLSB and other practitioner publications.

Data can be first hand collection by the researcher as primary data, data can also be acquired from third parties and data can be collected from other publications or organisations.

Data collected can be either qualitative in nature or quantitative in nature. Qualitative data are nonnumeric while quantitative data as in this research is numeric.

Quantitative data was compiled by integrating a range of quantitative and qualitative sources. As well as studying publications of the industry and policy makers, data was collected from primary archives, government websites and industry publications to determine the existence and types of housing demand finance available to public sector workers. The various housing demand finance types were catalogued and studied as a case for its relevance and suitability for public sector workers in Ghana (Yin, 2003).

Data were also collected according to the hypothesis about the determinants of housing demand finance choice among public sector workers covering the various sectors of the economy per the budget statement. These data were compiled mainly from secondary sources.

Data collection is the next step in the data collection process. After which it is processed, managed and analysed.

The data collection process involved the administering of comprehensive questionnaire to the three hundred and eighty-four public sector workers in the Greater Accra ministries area where all the five major sector and its related departments and agencies are located.

Quantitative research focuses on data that can be measured, it is very effective at answering what or how of a given situation (Goertzen, 2017 p12). In quantitative research the phenomenon of interest is generally assumed to vary between people, or within people before and after a particular event, hence, this phenomenon is termed a variable (Botti and Endacott, 2005, p188). All the relevant characteristics of housing demand finance and public sector workers were identified as variables of interest and used as an appropriate measurement instrument.

The data collection methods considered for this research include survey in the form of questionnaire and observation. As mentioned earlier questionnaire was used to collect the data.

Questionnaires

Questionnaires are any group of written questions to which participants are asked to respond in writing, often by checking or circling (Morgan and Harmon, 2001). Questionnaires can adopt either structured or unstructured questions or both.

Questions are usually open or closed. Open questions are expected to generate narrative responses which are qualitative in nature while closed questions are where a choice of alternative responses are offered to be selected (Morgan and Harmon, 2001 pp975). The more structured the questions are, the easier they are for the researcher to interpret, as the data produced will be quantitative (Marshall, 2005). Less open and non-numerical observations are associated with qualitative data.

The questionnaire used for this research are closed-ended and require participants to either check or circle the responses. The responses for the general questions are the usual characteristics of participants for example ‘‘what gender do you identify yourself?’’ 1. Male, 2. Female and 3. Other. The rest of the questions that seeks to investigate the attitude of public sector workers on housing demand finance with Likert scale items when the participant is asked to rate from strongly disagree to strongly agree (Morgan and Harmon, 2001 pp975). Even though researchers develop their own attitude measuring scales, Likert scale developed this method as a way of measuring attitudes about particular groups, institutions or concepts (Morgan and Harmon, pp.975). Researchers should be able to adopt any of the scales provided it meets the requirement of the research design.

Validation of Questionnaire

Several literatures were search to establish if there are already validated questionnaires that relates to the research topic to be adopted for this research. The finding was not encouraging therefore the researcher adopted the questionnaire style of research studies partially related to this research. The use of validated questionnaire would have saved time during the design phase. The questionnaire used for this study were validated via a pilot study. The outcome of the pilot study highlighted the potential challenges that could have hampered the main research. Critical among the challenges found in the pilot study were the response options to the general questions where some participants were not willing to respond and the length of the questionnaire.

2.5 Data Analysis

In conducting a survey one must have the skills to analyse the data. Statistical analysis is one of the most widely used means to analyse data and was deployed for the data collected for this research. Statistical analysis can be undertaken manually or by a software. There are several methods of survey data analysis including diagnosis analysis – used in identifying patterns in data; predictive analysis – used to predict future events; prescriptive analysis – used in predicting future events from older data; statistical analysis – it covers data collection, analysing, modelling, interpretation, and presentation. Statistical analysis is further subcategorised as descriptive and inferential. This research used statistical analysis software to make meaning of the data collected and to ensure that modern data analysis technique is deployed for the ultimate outcome.

This section outlines the quantitative data analysis techniques used in the study in line with the research design. The researcher utilised SPSS program to perform statistical analyses on the raw data. Data collected was presented in statistical tables, charts and diagrams. The analysis of the questionnaire data adopts three phases in sequence; descriptive analysis, cross tabulation technique and hypothesis testing.

Quantitative data were analysed statistically, aiming at identifying which kinds of factors influences a public sector workers’ choice of housing demand finance. Wide range of statistical techniques were

deployed reflecting both mixed methodologies and post-positivist epistemologist using the SPSS software. Various regression analysis were deployed to analyse the extent to which housing demand finance is influence by the various dependent variables including age, marital status, position, salary and gender. The researcher also used logic model to illustrate the planned research and the intended results to justify the policy recommendations. In these sense the research employed mixed methods not just in terms of integrating quantitative and qualitative approaches but also by a range of quantitative techniques as illustration above. Through this analysis, we hoped to address the task of explanation in ways that could not be addressed adequately through identifying statistical correlations alone. This mixed methods analytical strategy was directly supported by our goal of post-positivism social science explanation.

The analysis helps find meaning to the raw data collected. The analysis starts by coding the data.

Coding

After the completion of the questionnaires in April 2022, the raw data were assigned codes and inputted on the computer. There are nine types of variables in SPSS including numeric and string, in this research numeric variables were used to enable the researcher perform numeric operations such as calculating mean, median and other statistical tests. The variable view in SPSS was used in the coding by assigning names to each variable. Each question was synonymous to a variable with the accompanying label characteristics describing it. See Table 2.3 for variable names:

Table 2.3: Sample Variable Names and Labels

Question No./Variable	Variable label
Q1	Gender
Q2	Marital Status

The default decimals in SPSS is two but in this research it was adjusted to zero as the researcher see whole numbers as ideal for interpreting the data collected.

The variable name coding in SPSS can be done before or after data entry, in this analysis the researcher coded before data was entered. The characteristics for each variable was completed in a way that give meaning to the variable. Values labels were used to assign numbers to the categorical variables, e.g. Male=1, female=2.

3.0 Analysis

Once data is collected, it has to be processed before analysis can be performed. The data collected were assigned codes to the variances and the relevant characteristics were also completed. Then, statistical analysis was used to answer the questions. Statistical analysis requires having a clear understanding of ‘‘what is the goal to come out of the measurement that resulted in the data set’’ (Albers, 2017, pp228).

Statistical analysis was performed to test the hypothesis of the research. Descriptive statistics and regression analysis were used to analyse the data to answer the research questions

Ordinal logistic regression

Ordinal logistic regression is used to predict an ordinal dependent variable given one or more independent variable. Having carried out ordinal logistic regression analysis you will be able to determine which of your independent variables have a statistically significant effect on your dependent variable.

Assumptions of Ordinal logistic regression include: the dependent variable should be measure at the ordinal level. This is akin to Likert items as in the dependent variables for the hypothesis related to the second and third questions. Must have one or more independent variables that are continuous, ordinal or categorical (including dichotomous variables). There is no multi-collinearity which is where two or more independent variables are highly correlated with each other. Each independent variable has an identical effect at each cumulative split of the ordinal dependent variable.

Table 3.1: Case Processing Summery

Case Processing Summary			
Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	373	97.1
	Missing Cases	11	2.9
	Total	384	100.0
Unselected Cases		0	.0
Total		384	100.0
a. If weight is in effect, see classification table for the total number of cases.			

The dependent variable encoding table shows the coding for the criterion variable, in this case public sector workers who prefer housing demand finance are classified as 0 while those who do not use housing demand finance are classified as 1. See table 3.2

Table 3.2: Dependable Variable Encoding

Dependent Variable Encoding	
Original Value	Internal Value
Yes	0
No	1

The Block 0 output is the results of the analysis without any of our independent variables used in the model. Given the base rates of the two decision options (268/ (105+268) =72% prefer housing demand finance, 28% do not prefer other housing demand finance), and no other information, the best strategy is to predict, for every case that public sector workers will prefer housing demand finance. Using this strategy, we will be correct 72% of the time. See table 3.3 below.

Table 3.3: Classification Table

Classification Table[a,b]					
			Predicted		
			Housing Finance		Percentage
	Observed		Yes	No	Correct
Step 0	Housing Finance	Yes	268	0	100.0
		No	105	0	.0
	Overall Percentage				71.8
a. Constant is included in the model.					
b. The cut value is .500					

Under variables in the equation we see that the intercept-only model is In (odds) = -.937. if we exponentiate both sides of this expression we find that our predicted odds [Exp (B)] = .392. This is the predicted odds of preferring housing demand finance (.392). Since 268 of our respondent prefer to use housing demand finance and 105 do not prefer to use housing demand finance our observed odds is .392. See table 3.4 below.

Table 3.4: Variables in the Equation

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.937	.115	66.240	1	<.001	.392

Under block 1 output income variable has been added as a predictor. The Omnibus Test of Model Coefficients gives us a Chi-Square of 40.329 on 5 df, significant beyond .001, which is used to test the model fit. If the model is significant, this shows that there is a significant improvement in fit as compared to the null model, hence the model is showing a good fit. This is a test of the null hypothesis that adding the income variable to the model has not significantly increased our ability to predict the decision made by public sector workers. See table 3.5 below for details.

Table 3.5: Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	40.329	2	<.001
	Block	40.329	2	<.001
	Model	40.329	2	<.001

The model summary shows the Psuedo R-Square. Psuedo means that it is not technically explaining the variable. This statistic measure how poorly the model predicts the decisions, the smaller the statistic the better the model. The Cox & Snell R^2 can be interpreted like R^2 in a multiple regression, but cannot reach a maximum value of 1. Normally used is the Nagelkerke R^2, which is an adjusted version of the Cox & Snell R-Square that adjusts the scale of the statistic to cover the full range from 0-1. In this case we can say that 14.7% change is the criterion variable can be accounted to the predictor variables in the model. See table 3.6 below.

Table 3.6: Model Summery

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	403.068[a]	.102	.147
a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.			

The Hosmer and Lemeshow Tests the null hypothesis that predictions made by the model fit perfectly with the observed target group. Cases are arranged in order per their predicted probability on the criterion variable. These ordinal case are then divided into four groups of equal or near equal size ordinal with according to their predicted probability of the target event. The model adequately fits the data. A chi-square statistic is computed comparing the observed frequencies with those expected under the linear model. A significant chi-square indicates that the data does not fit the model well (Sig. <.001) see Table 3.7 below. As we can see, there are differences between the observed and predicted model. Both the values are not approximately equal see Table 3.8 below.

Table 3.7: Hosmer and Lemeshow Test

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	17.740	2	<.001

Table 3.8: Contingency Table for Hosmer and Lemeshow Test

Contingency Table for Hosmer and Lemeshow Test						
		Housing Finance = Yes		Housing Finance = No		
		Observed	Expected	Observed	Expected	Total
Step 1	1	81	88.880	19	11.120	100
	2	69	61.120	4	11.880	73
	3	71	63.120	27	34.880	98
	4	47	54.880	55	47.120	102

The classification table provides an indication of how well the model is able to predict the correct category once the predictors are added into the study. This comparison is shown in the classification table for how much improvement there is when the predictor variables are included in the model. The model correctly classified 71.8% of cases overall (also referred to as the percentage accuracy in classification). In other words, this is the rate of correct classification if we always predict that a respondent would prefer housing demand finance to other housing acquisition methods. It represents information on the degree to which the observed outcomes are predicted by the model. See Table 3.9

Table 3.9: Classification Table

Classification Table[a]					
			Predicted		
			Housing Finance		Percentage Correct
	Observed		Yes	No	
Step 1	Housing Finance	Yes	268	0	100.0
		No	105	0	.0
	Overall Percentage				71.8
a. The cut value is .500					

The variables in the equation table shows the relationship between the predictors and the outcome. B (Beta) is the predicted change in Log Odds, for one unit change in predictor. There is Exp(B) change in the probability of the outcome. The beta coefficients can be negative or positive, and have a t-value and significance of the t-value associated with each. If the beta coefficient is negative, the interpretation is that for every 1-unit increase in the predictor variable, the outcome variable will be decreased by the beta coefficient value.

We use the wald ratio for each of the independent variables and its associated p value:

X2(1) = 3.275, p = 070; and x2(1) = 30.910, p = 001 respectively. We conclude that the coefficients for gender independent variable is not significantly different therefore it is not a significant predictor of the dependent variable, on the other hand the coefficient for married is significantly different from those in the even odds (null) model; therefore, this independent variable is a significant predictor of the dependent variable see table 3.10 below.

Table 3.10: Variables in the Equation

Variables in the Equation									
								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Gender(1)	-.441	.243	3.275	1	.070	.644	.399	1.037
	Married(1)	-1.485	.267	30.910	1	<.001	.226	.134	.382
	Constant	-.152	.184	.684	1	.408	.859		
a. Variable(s) entered on step 1: Gender, Married.									

6.3.3 Marital Status and Gender

The hypothesis, has two parts A and B. The A which test whether marital status of public sector workers has no effect on their decision to acquire housing demand finance was tested. The test of the alternate hypothesis found that the marital status of public sector workers significantly affects their demand housing finance decision therefore we reject the null hypothesis. In gathering information of consumers' attitudes towards housing demand loans scheme businesses have to pay particular attention to the marital status of potential customers. There could be many reasons why the marital status a public sector worker affects his or her decision in deciding what housing loan to acquire. The marital union could be as a result of their ability to afford more tax discounts, have more income at their disposal, have more responsibilities or able to save more. The specific reasons are not relevant or important factor in the reaction of married couple towards housing demand finance schemes.

The second part of the hypothesis tested the effect of gender on public sector workers' choice of housing loans finance. The test of the alternate hypothesis found that gender has no effect on the choice of housing finance for public sector worker therefore the null hypothesis is accepted.

Further research is required to ensure that the finding can be generalized. This study focused only on Public Sector Workers. Expanding the scope will offer a clearer picture of the finding.

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