IMPACT OF ISLAMIC BANKING INCLUSION ON SME EMPLOYMENT GROWTH IN NIGERIA

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ABSTRACT

Despite the considerable resources devoted to SMEs by Islamic banks worldwide, and Nigeria in particular, there has been no rigorous empirical evidence regarding the effectiveness of Islamic banking inclusion on employment growth in SMEs globally. This study fills this gap by analysing the effectiveness of access to Islamic banking financing in promoting MSME's growth in Kano Metropolis, Nigeria. We focus on the impact of the credit lines facilitated by Jaiz Bank Plc in fostering firms' growth measured in terms of employment. A survey based on a quasi- experimental approach was employed and the data were collected by means of a questionnaire distributed to a sample of 385 MSMEs' beneficiaries and non-beneficiaries of Islamic bank financing in Kano Metropolis, Nigeria. Using difference-in-difference and propensity score matching techniques to deal with selection bias, the study found significant positive effects on MSMEs' employment growth. In addition, the paper highlights the important role of Islamic bank financing in mitigating the unemployment crisis in Nigeria. The paper recommends that improvement of the Islamic banking system by employing PLS financing, especially Musharaka, could foster MSMEs' financial inclusion and job creation.

Keywords: Islamic banking inclusion, Employment growth, DID, QDID.
JEL classification: C32; C33; G21; J23.

I. INTRODUCTION

1.1. Background

Development cannot be achieved without jobs. However, at the global level, more than two hundred million people are unemployed, mainly in developing economies (IFC, 2013). There is a need to create six hundred million jobs globally by 2030 in order to meet the employment demands of the growing workforce (World Bank, 2014). One of the greatest impediments confronting the Nigerian economy is the challenge of unemployment, which has been increasing over time. The devastating effect of unemployment at the individual, societal and economic levels is indeed a serious issue of great concern, which has drawn the attention of policymakers, economists and economic managers (Bello, 2003). SMEs are more labour intensive, create more jobs than larger firms, and henceforth are the most important channel for fostering job creation (Birch, 1981, 1987). Therefore, they are the major drivers of job creation and have attracted policy attention as an alternative and viable measure in promoting employment growth (Pytkowska & Korynski, 2016).

Job creation occurs as firms expand, develop new products, increase their market share, introduce new technologies and promote process innovation capable of mitigating operation costs. This consequently enhances productivity and takes advantage of the increased economies of scale; however, without external financing, firms may lack the required liquidity to implement the systematic and logical investment decisions that can promote business expansion (Kurdaly, 2013). Nevertheless, there is considerable evidence which confirms that small firms have less access to formal sources of external finance (Beck & Demirguc-Kunt, 2006). In addition, Beck, Demirgüc-Kunt and Maksimovic (2008) further stress that small firms use less external finance, particularly bank financing. Henceforth, limited access to external finance has often been reported as the most pressing and key constraint to SME growth.

In Nigeria, SMEs are bedevilled by serious financing bottlenecks, as conventional bank credit is highly inaccessible, meaning firms cannot play their expected economic and social roles (Bazza, Maiwada, & Daneji, 2014**)**. Although the Central Bank of Nigeria has directed all commercial banks to allocate a certain percentage of their loans to SMEs, the banks have refused to adhere to this and prefer to pay fines for non-compliance. Even when credit is made available, it is not a feasible option due to the stringent conditions attached as criteria for obtaining the loan. In response to this market failure, the federal government of Nigeria has designed several credit schemes to relax the credit constraint facing the sector, but the problem still persists as the funds have been diverted to larger firms or the accounts of public office holders. Therefore, conventional bank credit and government credit intervention schemes are deemed to be ineffective. Consequently, given the limited supply of funds to SMEs, employment growth has been retarded (see Appendix I). More importantly, significant evidence has established that financial deepening can boost job creation, which partly occurs through the expansion of SME finance (Beck, 2013). Henceforth, easing SMEs' credit constraints leads to productivity growth and creates better quality jobs that in turn can promote further growth (Ayyagari, Demirguc-Kunt & Maksimovic, 2014).

The role of the financial sector in channelling financial resources to the private sector has important implications for job creation.This is better realised in the Islamic financial system, given that within it non-interest credit is tied to the real sector in all aspects of banking transactions, with the potential to foster job creation. In addition, Islamic banks, being built on socioeconomic justice, consider SMEs in their financing processes. Islamic finance, through its asset-backed and equity-based financial instruments, can foster the financial inclusion of SMEs through bridging the financing gap suffered by the sub-sector (World Bank Group & Islamic Development Bank, 2015). Islamic finance is expected to have greater potential impact on job creation through its financing consideration and support for SMEs (Islamic Development Bank & CIBAFI, 2012**)**. Islamic banks in Nigeria pledge to support the economy through financing with a focus on directing credit to SMEs (Jaiz Bank, 2015). Therefore, alleviating the credit constraints faced by the SME sector in Nigeria through Islamic bank financing can encourage the entry of new firms, and improve their chances of survival and growth, leading to the creation of more and better jobs.

Voluntary financial exclusion for religious reasons is a major concern, especially in Muslim countries; Nigeria is no exception, particularly Kano State. Conventional financial intermediation, given its interest-based nature, is inappropriate for Muslim households and entrepreneurs seeking formal accounts or financing, which is perhaps why it is financially excluded from the formal system due the non-sharia compliance of its financial services (Zhulkhibru, 2016). Interestingly, Islamic finance is capable of promoting financial inclusion in countries with considerable Muslim populations by reducing religious-based voluntary exclusion (World Bank, 2014). Given the substantial Muslim population in Nigeria, financial exclusion at individual and firm levels for religious reasons is expected. In addition, given the high financial exclusion rate in Nigeria largely because of Islamic beliefs, Islamic banking was introduced into the country as part of the government's financial inclusion policy (Sapovadia, 2015). Moreover, SMEs in Northern Nigeria, a predominantly Muslim region, are unwilling to use interest-based credit, but have expressed their desire to use the Islamic finance option in financing their business activities (Dabo, 2006). Therefore, through the Islamic banking system in Nigeria, the financial exclusion rate can be mitigated. In this regard, Islamic banks in Nigeria can play a significant role in promoting banking inclusion for the large number of Muslim entrepreneurs in the country.

In general, Nigeria is selected, first because of its Muslim population, which has shown strong interest in patronising Islamic banks (Ringim, 2014); second, as a large number of non-Muslims have also expressed their willingness to use Islamic banks (Kewuyemi, 2015); and third, because the country has the fastest growth in Islamic finance assets (Reuters, 2018). Presently, Nigeria is experiencing rapid expansion in Islamic banking assets, financing and deposits (IFSB, 2018). Specifically, Kano state was selected as a case study as it has the highest Muslim population in the country; second, it has a large number of micro, small and medium scale enterprises, ranking it among the states with highest number of MSMEs in the country; third, it is the state with the most Islamic bank customers; and fourth, the state is ranked third in the country with regard to total employment generated by SMEs, and fourth in terms of that generated bymicro enterprises (SMEDAN

& NBS, 2017). Overall, there are two fully-fledged Islamic banks and four Islamic banking windows in Nigeria, which provide non-interest banking services (see Appendix II). We focus on the impact of the credit lines facilitated by Jaiz Bank Plc in fostering firm growth measured in terms of employment. Therefore, this bank was chosen as the case study for the following reasons. First, it was the first fully-fledged Islamic bank in Nigeria. Second, it has achieved remarkable growth in terms of customer deposits, assets and financing in the real economic sector; and finally, the bank was among the recipients of the global best Islamic bank award in 2018 and 2019.

Although Islamic banking inclusion for MSMEs is generally considered to be important, little is known about the impact of access to such bank financing on SME growth. Some of the few studies on the area include that of Hove, Sibanda and Pooe (2014) in respect of South Africa; Faisol (2017) with regard to Indonesia; and Muneer, Ali and Ahmad (2017) and Malik and Ashraf (2019) in the case of Pakistan. Previous empirical studies on the Islamic SME financing-growth nexus, with the exception of Malik and Ashraf (2019), focus on sales growth, profit growth, and market share growth as outcome variables, rather than employment growth. Employment, unlike sales, is preferable, given its perfect correlation with other growth indicators (Shepherd & Wiklund, 2009). Therefore, employment is the most robust and flexible indicator of firm growth, in addition to logical imperatives globally. Even in conventional literature, Kumar (2017) indicates the limited empirical evidence of SME financing interventions on firm-level employment growth.

In addition, Hamzah and Gazali (2015) highlight that studies linking Islamic financing and MSME performance are largely theoretical, whereas there is little empirical work in this context; they therefore urge focus in the literature in this direction. However, none of these limited empirical studies on Islamic financing literature controls for selection bias, implying that they fail to employ rigorous identification strategies to isolate the actual causal impact of Islamic bank financing. This is a huge research gap in the Islamic banking literature. Therefore, this paper employs quasi-experimental econometric techniques to control for selection bias using both difference-in-difference and kernel propensity matching techniques to evaluate the impact of access to Islamic bank financing on firms' employment growth.

A longitudinal questionnaire survey was administered to MSME beneficiaries of Islamic bank financing, with similar MSMEs that had never received financing from Islamic banks representing control group units. The results indicate that access to Islamic bank financing has a significant and positive effect on firms' employment growth. The results further show that the employment effect is only significant at the 10th and 90th percentiles respectively.

1.2. Objective

The main objective of this research is to analyse the impact of Islamic bank financing participation on SMEs' employment growth in Kano Metropolis, Nigeria. The study employed a survey design strategy to collect longitudinal information from the respondents. The study therefore compares the employment growth trends of

both two groups of firms; i.e., treated and non-treated MSMEs, with reference to their situation before and after receiving financing. Specifically, the study estimates the average treatment effect, controlling the effects of observable and unobserved factors which might be related to participation and outcome variables. To achieve this, we employed the Kernel propensity score DID treatment effect technique. In addition to the average effect, we also estimated the employment effect over the distribution of the outcome variable using DID Quantile regression.

This paper is structured as follows: following the introduction, section 2 comprises the theoretical and empirical literature review, section 3 considers the methodology, while section four presents the results and analysis. Section five focuses on the conclusion, and section six presents the policy recommendations. Finally, section seven makes suggestions for further research.

II. LITERATURE REVIEW
2.1. Background Theory
Islamic banking is a system of banking based on the ethos and value system of Islam, which targets the achievement of goals and objectives of an Islamic economy, free from interest-based transactions, speculative activities or excessive risk-taking, gambling or games of chance, and engaging in unethical investment. Islamic scholars have developed standards that serve as the main building blocks which govern the Islamic theory of economics and finance, emphasising the banning of interest as the most important attribute of the theory, defined as any predetermined rate of return on loans or debts (Ayub, 2007). Islamic banking is a financial system whose key aim is to fulfil the teachings of the Holy Quran (Elghattis, 2011). Islamic law reflects the commands of God and regulates all the aspects of a Muslim's life; therefore, Islamic finance is directly involved with spiritual values and social justice. The basic intention behind establishing Islamic banks was the desire of Muslims to reorganise their financial activities to complement the principles of sharia and enable them to conduct their financial transactions without riba (Zaher & Hassan, 2001). Islamic banking is expected to offer financial products and services that are compatible with Islamic law, and hence encourage Muslim individuals and firms with religious concerns to have access to finance and move from the informal to the formal financial system (Abedifar, Hasan & Tarazi, 2014). Ultimately, Muslims prefer subscribing to financial services that adhere to the Islamic religious injunctions stated in the Quran, among which is the primary prohibition of interest payments.

Islamic banks transform the nature of this relationship emphasising partnerships through co-operation and participation. In the case of loss, this is absorbed by the depositors according to their respective investment funds. In case of profit, the returns for both fund owners and the bank itself is a function of realised net profit at the end of the financial period. This sharing mechanism differs considerably from conventional practices; the approach to financial intermediation facilitates the use of a profit and risk sharing strategy in financing real economic sector activities (Kahf, 1999).

In banning riba, Islam seeks to establish a society based upon fairness and justice (HolyQur'an 2:239). A loan provides the lender with a fixed return,

irrespective of the outcome of the borrower's venture. It is considered to be much fairer to have a share of the profits or losses. Fairness in this context has two dimensions: the supplier of capital possesses a right to reward, but this reward should be commensurate with the risk and effort involved and thus be governed by the return on the individual project for which funds are supplied (Presley, 1988). Therefore, what is forbidden in Islam are predetermined returns. The sharing of profit is legitimate and acceptance of this practice has provided the foundation for the development and implementation of Islamic banking. In Islam, the owner of capital can legitimately share the profits made by the entrepreneur. What makes profit sharing permissible in Islam, while interest is not, is that in the case of the former, it is only the profit-sharing ratio, not the rate of return itself, that is predetermined (Algaoud & Lewis, 2007, p. 46).

It is argued that interest-based lending allocates capital to creditworthy borrowers rather than to the most productive investment, whereas Islamic-based PLS financing allocates financial resources to good productive investment projects, given the fact that sharing in ex-ante generated profit is more promising . In this regard, Muslim economists contend that the profit and loss sharing system, given its equitable or participatory nature, promotes harmony among social classes, as financing is made available to anyone with a productive business idea (Zaher & Hassan, 2001).

Abdouli (1991) posits that Islamic financial intermediaries, being founded on Islamic principles of social justice, give priority to societal interests, emphasising social imperatives rather profit maximisation. The Islamic banking system offers a new lending approach which is dissimilar to the conventional common practice of western financial intermediaries which allocate credit facilities mainly to those with tangible collateral. Islamic banking based on equity financing gives equal opportunities to prospective entrepreneurs, including small firms, by replacing asset-based collateralised financing with intangible assets such education, experience and skills. This enables small entrepreneurs to have collateral-free access to finance, leading to overall societal welfare by ameliorating income distribution.

Iqbal and Mirakhor (2013) argue that the core principles of Islam put substantial emphasis on social justice, inclusion, and the sharing of resources between the haves and the have-nots. Islamic finance addresses the issue of financial inclusion from two directions: first by promoting risk-sharing contracts that provide a viable alternative to conventional debt-based financing; and second by specific instruments of wealth redistribution in society. The Islamic system advocates risk sharing in financial transactions; such a system offers various advantages over the conventional one based on risk shifting. Use of risk-sharing instruments could encourage investors to invest in sectors such as MSMEs, which are perceived as high-risk.

Although SMEs are breeding grounds for innovation, they are often financially constrained; therefore, the role of finance in promoting firms' growth cannot be overemphasised. External finance is critical to SME employment growth. In line with Islamic principles, exploitative or unfair contracts are not allowed, so the risk sharing principles that emphasise on profitability or borrowers' entrepreneurial competence can play a significant role in financial inclusion for SMEs. In addition, the

presence of Islamic banking in Islamic countries can attract Muslim entrepreneurs and Islamic SMEs, in particular those with religious concerns about the formal financial system, thereby fostering access to finance for entities underserved by the conventional banking system, given their non-sharia-compliant financial services.

2.2. Previous Studies

Despite the importance of SME finance intervention, there is little evidence regarding its effectiveness. Conventionally, rigorous SME finance evaluation studies that control for selection bias are rare (Piza et al., 2016). These studies mainly concentrate on Latin America, Asia and Eastern Europe, with none on Africa (Kersten, Harms, Liket, & Maas 2017) or Nigeria in particular. The limited research includes the work of Aivazian and Santor (2008) in the case of Sri Lanka; Arraiz, Melendez and Stucchi (2014) and Eslava, Maffioli and Meléndez (2012) in relation to Colombia; Binelli and Maffioli (2007), Castillo, Figal-Garone, Maffioli, Rojo, and Stucchi (2016) and Chudnovsky, López, Rossi and Ubfal (2006) with regard to Argentina; Cassano, Jõeveer and Svejnar (2013) on Bulgaria, Georgia, Russia and Ukraine; Da Silva, Resende and Silveira Neto (2009) and De Negri, Maffioli and Rodriguez (2011) on Brazil; Lopez-Acevedo and Tinajero (2010) in the case of Mexico; Lopez-Acevedo and Tan (2010) in relation to Chile, Colombia, Mexico, and Peru; and Benavente, Crespi and Maffioli (2007) and Tan (2009) with regard to Chile.

In the literature on the impact of Islamic banking financing, Hove et al.'s (2014) study was the first attempt to link Islamic banking to SME performance. It analyses its impact in South Africa, with the mediating role of firm competiveness and the entrepreneurial motivation of SMEs. Using the partial least squares method, the findings show that Islamic banking has a significant positive effect on the entrepreneurial motivation and firm competitiveness of SMEs, whereas the link between entrepreneurial motivation and SME business performance was found to be insignificant. However, their study further reveals that firm competitiveness has a positive and significant impact on SMEs' business performance. They recommend that the government, as the chief policymaker, should promote Islamic banking services for SMEs through quasi-governmental financial institutions, private banking intermediaries, and the setting up of specialised Islamic banks.

In the case of Indonesia, Faisol (2017) also examined the impact of Islamic bank financing on SME welfare, with mediating role of SME performance. Using the partial least squares method, the finding reveal that Islamic banking financing has a positive and significant effect on SME performance and welfare. The study recommends the need for the expansion of sources of Islamic financing for SMEs, as this would promote and support their growth.

In Pakistan, Muneer, Ali and Ahmad (2017) examined the impact of financing on SME growth with the moderating effect of Islamic modes of financing. Also using the partial least squares method, they found that Islamic finance did not play the role of moderator. However, representing Islamic modes of financing as independent variables, the findings revealed evidence of the positive effect on firm performance measured by profitability.

In another study of Pakistan, Malik and Ashraf (2019) were the first to link Islamic bank financing to firm-level employment generation. Precisely, the study investigated the impact of asset formation on employment creation among SMEs that were receiving Islamic bank financing in Punjab province of Pakistan. Using least squares regression, they reveal that asset formation has a positive and significant effect on the employment generation of SMEs which used Islamic modes of financing, whereas technology, firm age and business size exhibited a negative link with employment generation. Although the study established evidence for a positive employment effect, it represents an indirect impact of Islamic banking financing. Therefore, our study focuses on the direct relationship between access to Islamic bank financing and MSME employment growth.

Overall, the major drawback of these evaluation studies is that they make use of a pre-experimental design; otherwise known as a one-shot case study design, only one single group is studied or observed at a time. Precisely, only the treated group is examined based on post-test measurement, with no inclusion of pre-test or control groups. This design is vulnerable to flaws, given the emphasis only on post-test measures and the absence of comparison groups, so caution should be exercised when interpreting results based on this approach (Jackson, 2009). This study therefore employed a non-randomised control group pretest and posttest quasi-experimental design, which emphasises the pretest and posttest measures, as well as including a comparison group in estimating the average treatment effect. Therefore, our study contributes to the Islamic banking literature by rigorously mitigating selection bias by controlling unobserved factors using the DID fixed effect estimator, as well as by controlling observable factors through matching treated and control group units based on pre-treatment firm characteristics.

III. METHODOLOGY
3.1. Data

One important assumption of DID is that it requires the simultaneous presence of treated and control units (Villa, 2016). Therefore, the MSME respondents were categorised into two units of analysis, namely treated and untreated firms (control group). In addition, the target population was divided into two segments; i.e., beneficiaries (treatment group) and non-beneficiaries (control group) of Islamic bank financing in Kano Metropolis, Nigeria. In line with Israel's (1992) formula for extracting the sample size of an unknown population, the sample size in this study for each distinct unit of analysis was 385 respondents, which aggregates to 770 respondents when both treated and contol units are taken into consideration.

During the first quarter of 2020, the questionnaires were distributed to the 770 MSMEs (defined as businesses with fewer than 199 employees) in Kano metropolis, Nigeria. Regarding the beneficiary MSMEs, 385 questionnaires were administered based on snowball sampling of firms that had received financing from Islamic banks. For the control group unit of MSMEs, another 385 questionnaires were administered, based on convenience sampling of firms that were not receiving financing during the survey period.

201 out of the 385 questionnaires were returned by the MSME control group, representing a response rate of 52.2%. For the treated group, based on our survey

treatment was received in 2016, 2017, 2018 and 2019. 299 valid questionnaires were returned from the whole treated group, which represented a response rate of 77.7%; this was achieved through snowball sampling or the referral nature of collecting information from the beneficiary firms with the aid of research assistants.

Focusing on a single year has the advantage of allowing a clear definition of pre- and post-treatment period in a single estimation (Eslava et al., 2012). This study therefore considers 2017 as the participation year for Islamic bank financing and therefore all treated MSMEs before and after 2017 are not considered in the analysis. The basis for considering 2017 is that first it takes some time for a firm's employment effect to materialise of which, beyond one or two years following treatment is reasonable, and second, considerable quantum of treated MSMEs. Based on this reasoning, this study discarded all treatment periods apart form 2017.

3.2. Model Development

Following the rigorous SME finance evaluation studies discussed above, this study therefore employs a quasi-experimental approach that combines difference-in-difference and propensity score matching techniques to examine the impact of access to Islamic bank financing on employment growth in MSMEs. Moreover, in line with Cassano et al. (2013) and Benavente et al. (2007), our study uses a survey design based on collecting longitudinal MSME information rather than secondary datasets due to their unavailability in Nigeria.

3.3. Data Analysis Techniques

The econometric estimation strategy was based on comparing the employment growth of treated and non-treated MSMEs. According to Villa (2016), the DID model can be seen in terms of three frameworks or perspectives; i.e., single DID, single DID with covariates, and the kernel propensity score DID treatment effect. This study uses the kernel propensity score DID treatment effect as the analytical framework for drawing inferences. The single DID framework is illustrated in equation (1). The outcome variable denoted by Y_{it} refers to the difference-in-difference average treatment effect, which entails differences or net changes in respect of outcome variables for the treated and control groups with reference to the pre- and post-treatment period.

$$DiD = \{E(Y_{it=1}/D_{it=1} = 1, Z_i = 1) - E(Y_{it=1}/D_{it} = 0, Z_i = 0)\}$$
$$-\{E(Y_{it=0}/D_{it=0} = 0, Z_i = 1) - E(Y_{it=0}/D_{it=0} = 0, Z_i = 0)\} \tag{1}$$

The single DID with covariates as illustrated in equation (2) entails the incorporation of covariates, which can be of great significance in events in which observable factors may affect the identification strategy. Given the characteristics of difference-in-difference estimation, the actual treatment effect can be isolated by controlling for observable factors. If such factors are present, they can be included in the model. Therefore, the outcome variable which is denoted by Y_{it} is basically

the difference-in-difference average treatment effect, which entails differences or net changes in respect of the outcome variables for the treated and control groups referencing to pre-and post-treatment period adjusting for control covariate.

$$DiD = \{E(Y_{it=1}/D_{it=1} = 1, Z_i = 1, X_i) - E(Y_{it=1}/D_{it} = 0, Z_i = 0, X_i)\}$$
$$-\{E(Y_{it=0}/D_{it=0} = 0, Z_i = 1, X_i) - E(Y_{it=0}/D_{it=0} = 0, Z_i = 0, X_i)\} \tag{2}$$

Villa (2016) offers an alternative approach to measuring the average treatment effect by using DID augmented with kernel propensity weights. Each beneficiary is matched with whole units of the non-beneficiary group, rather than being limited only to those untreated units with the closest nearest neighbour. Besides incorporating control or instrumental variables, the baseline covariates can be used as a benchmark for estimating the propensity score (the probability of participation); calculation is then made to obtain the kernel weights (Heckman, Ichimura & Todd, 1997, 1998). This approach starts by estimating the propensity denoted by (p_i) for each distinct group; i.e., the control and treated units. This is given by:

$$p_i = E(Z_i = 1/X_i) \tag{3}$$

Heckman, Ichimura and Todd (1997) posit that kernel matching can be obtained by the calculation of kernel weight based on the propensity score, which is subject to incorporated control covariates. This is given by:

$$w_i = \frac{K(\frac{p_i - p_k}{h_n})}{\sum K(\frac{p_i - p_k}{h_n})} \tag{4}$$

where w_i = is the kernel weight, $K(.)$ represents the kernel function, while h_n stands for the bandwidth. Therefore, the kernel weight given by w_i is integrated into equation (1) to facilitate a kernel propensity-score matching difference-in-difference treatment effect, as shown in equation (5):

$$DiD = \{E(Y_{it=1}/D_{it=1} = 1, Z_i = 1, X_i) - w_i \times E(Y_{it=1}/D_{it} = 0, Z_i = 0, X_i)\}$$
$$-\{E(Y_{it=0}/D_{it=0} = 0, Z_i = 1, X_i) - w_i \times E(Y_{it=0}/D_{it=0} = 0, Z_i = 0, X_i)\} \tag{5}$$

In this study, two distinct software programs were used for the data analysis. Stata software version 14.0 was mainly used for the inferential statistics estimation, whereas SPSS version 22.0 was primarily used only for the descriptive statistics analysis.

3.4. Identification Strategy

The identification strategy entailed addressing issues related to checking for appropriate counterfactuals and mitigating other form of bias caused by unobserved heterogeneity. This study investigates the impact of access to Islamic bank financing on firm growth, as measured by annual changes in employment. Therefore, a sample of non-beneficiary MSMEs is employed to estimate the counterfactual outcome of the beneficiary MSMEs. If treatment is randomly assigned, comparing the differences of the average employment growth of the non-beneficiaries MSMEs and that of beneficiaries will yield an unbiased estimated Islamic bank financing impact. However, lending institutions do not randomly assign credit to firms, given their administrative selection criteria in granting credit to firms with either superior or inferior performance (Cassano et al., 2013). It has been reported that Islamic banks do request collateral before giving credit to SMEs (Huda, 2011). Providing tangible collateral in exchange for finance from Islamic banks is one of the major problems faced by entrepreneurs (Alhabshi, 2015). This amounts to selection bias, implying non-random assignment of credit to SMEs or an unequal chance of gaining access to Islamic financing. To confirm this, MSMEs that had received credit from Islamic banks were asked if they had provided collateral beforehand, which was also measured as a dummy variable (Yes or No). Based on the responses in respect of 2017 treatment, all the beneficiaries had provided collateral before obtaining credit from the Nigerian Islamic bank (Jaiz Bank).

Therefore, if treatment is non-randomised, the beneficiaries and non-beneficiaries may vary in both their observable and unobservable characteristics. Therefore, variation in treated and untreated firms' baseline characteristics is attributed to the non-random assignment of treatment and issues related to self-selection ; administrative selection bias arises, which has the potential to affectthe validity of the results (De Negri et al., 2011). Therefore, simple comparison of the averages does not yield a true average treatment effect. Precisely, if access to Islamic banking financing is determined by observable factors, these factors, i.e. firm size and sector, will be incorporated as explanatory variables predicting the probability of participation in the Probit model to estimate propensity scores, as well as to control for covariates in the post-treatment period estimation. Moreover, if access to Islamic banking financing is affected by unobserved heterogeneity such as managers' characteristics, firms' managerial competence or investment opportunities which are hardly accounted for given their unobservable nature . Therefore, the micro-panel structure with the aid of the fixed effects estimator gives us the privilege of controlling for unobserved factors that do not change over time.

IV. RESULTS AND ANALYSIS

4.1. Results

4.1.1. Descriptive Statistics

Appendix III shows the sample distribution based on size class, age group and sector for both the treated and control MSME groups. 119 were beneficiaries of Islamic bank credit, out of which 77 were micro and 42 small firms. In terms of

firm age, 53 were young and 65 mature firms, with only one belonging to the old category. In terms of sector affiliation, 61 firms were manufacturing, 54 trade, three agriculture and one trade . Out of the 210 non-beneficiaries (control group), 130 were micro firms and 71 small firms. Regarding the firm age of the control group, 106 were young firms, 92 mature and four old. In relation to sector affiliation, 150 firms were manufacturing, 164 trade, 12 agriculture and one trade.

The total number of beneficiary MSMEs was 119. Appendix IV shows that 116 (97.5%) of these were financed using Murabaha, while three (2.5%) were financed using Ijarah financing instruments. It was further revealed that all the beneficiary MSMEs provided tangible collateral with the Islamic bank before receiving their credit facility. Out of the total of 119, 103 (86.6%) put up land or buildings as collateral, while 16 (13.4%) put up their personal assets in the form of houses as collateral.

Regarding the respondents' control group, in terms of gender appendix V shows that 188 of the subjects (93.5%) were male, while only 13 (6.5%) were female. The reason for the disproportionately large male sample can be attributed to religious and cultural norms and values of Kano state. In terms of religion, the results indicate that majority of the control group respondents, 186 (92.5%), were Muslim, with 15 (7.5%) being Christian. Focusing on the respondents' treated group, appendix VI shows that 100 of the subjects (84.0%) were male and 19 (16%) female. In terms of religion, 110 (92.4%) of the subjects were Muslim, with the remaining nine (7.6%) Christian. This shows that majority of Islamic bank customers in the state are Muslims.

4.1.2. Key Variable Descriptive Statistics
Table 1 shows the descriptive statistics of the model variables.

Table 1.
Key Variable Descriptive Statistics

Variable	SMEID	ACEG	TREAT	SIZE	SECTOR	TIME	YEAR
Observations	1,280	1,280	1,280	1,280	1,280	1,280	1,280
Mean	160.5	.0085	.371875	1.410156	1.50625	.75	2017.5
Std. Dev.	92.4117	.0153388	.4834942	.4936405	.5245721	.4331819	1.118471
Min	1	-.05	0	1	1	0	2016
Max	320	.1	1	3	4	1	2019

Source: Field Survey (2020) computed using Stata 14.0

The total number of micro panel observations was 1280. Regarding the distinct unit of analysis there were 320 MSMEs, with 119 beneficiaries and 201 non-beneficiaries of Islamic bank financing. The treatment variable denoted by TREAT is a dichotomous variable representing participation, with a value of 1 for beneficiaries of Islamic bank financing and 0 otherwise. Technically, we defined the treatment variable as access to Islamic bank financing, equal to 1 for firms that had obtained financing from Islamic banks, and 0 otherwise. ACEG is the outcome variable measured as a continuous variable standing for the annual change in the

level of employment growth for firm *i* at time *t*. Following Cassano et al. (2013), employment growth was measured using an absolute measure, defined as the annual change in firms' employment and calculated as the current period of employment minus the previous period of employment [(t) - (t-1)]. In our case, we converted the data into a percentage by dividing the net change by 100 rather than using logarithms, as some of the values of annual change in employment growth are negative. This enabled us to interpret the results in percentage terms.

SIZE is a control variable measured as a categorical discrete variable and referring to business size as measured by firms' employment level, i.e. micro, small and medium. In line with Cassano et al. (2013), firm size is divided into three dummies: micro, small and medium. In Nigeria, following SMEDAN and NBS (2013), micro firms are defined as ones with a number of employees ranging from 1 to 9; small firms have between 10 and 49 employees; while medium-sized firms are those with between 50 and 199 employees. Therefore, given the dummy nature of firm size in our study, we represented micro as 1, small as 2 and medium as 3. SECTOR is also an instrumental variable measured as a categorical discrete variable, which represents the nature of the firm's business; i.e., manufacturing, trade, agriculture or transport . The sector is divided into four dummies employees for firm *i* at time *t*, with 1 representing manufacturing, 2 trading, 3 agriculture and 4 transport.

TIME is also an instrumental variable, measured as an dichotomous variable capturing the period before and after the assignment of treatment, with 0 representing the pre-treatment period and 1 the post treatment period. YEAR stands for time periods, representing sequential years before and after the treatment periods. SMEID stands for the MSMEs' identification number, which we assigned temporarily given the lack of unique ID numbers for respective SMEs in Nigeria. In advanced or emerging economies, each SMEs has a unique identifier, but in developing countries such as Nigeria, the reverse is the case. For the control MSMEs, we assigned IDs from 1 to 201, while the treated MSME group these were from 202 to 320.

4.1.3. Baseline Summary Statistics

When first observed, the pre-treatment characteristics of the beneficiaries and non-beneficiaries in Table 2 appear similar. However, once conducting the test of equality, the null hypothesis is rejected. Therefore, the untreated firms are a heterogeneous group of firms and may not be the right comparison group for the beneficiary firms. More exactly, it can be seen that the treated MSMEs are older and relatively larger in terms of employment than the untreated ones. The difference between the two groups is statistically significant. This apparently displays proof of participation bias. Therefore, evaluating the impact of Islamic financial inclusion necessitates appropriate counterfactuals to the beneficiary firm. This suggests the need to obtain counterfactuals prior to estimating the average treatment effect in order to achieve an unbiased estimated Islamic bank financing impact. This will serve as the first stage of the identification strategy.

Table 2.
Baseline Summary Statistics for the Treated and Control Groups

	Treated Group		Control Group		T-test	
2016	Mean	SD	Mean	SD	statistics	p-value
Total employment	7.7563	5.29305	4.9580	5.43279	4.076	.000
Total age of the firm	6.1008	2.81158	4.9160	2.59262	3.372	.001
Number of firms	119		201			

Source: Field Survey (2020) computed using SPSS 22.0

4.1.4 Construction of Common Support Sub-Sample

The difference-in-differences (fixed-effects) estimator is built on the assumption that in the absence of assignment of treatment, the trends in the outcome variable among the treated and control group are the same. Validating this assumption may well be hectic and unrealistic if the control group of firms are different from the treated ones. Therefore, if firms are heterogeneous in nature, they have the propensity to display distinct trends. To obtain bias-free results, we matched the treated and control groups based on the kernel propensity score weight, with each beneficiary MSME matched with all the groups of non-beneficiary MSMEs. In the work of Cassano et al. (2013), the treatment and control groups were matched by location, employment size and sector. Following this, the matching in our study was structured around firm employment size and sector based on the covariates in our study.

Consistent with the results shown in Table 3, firms that are small and micro-sized were measured by employment level compared to the largest firm have higher chance of access to Islamic bank financing compared to medium or large firms. Islamic banks, given their limited capital compared to conventional banks, focus on smaller-scale financing, in the form of micro, small, and medium credit (Huda, 2011). Moreover, the main comparative advantage in using Murabaha for financing small businesses, given its collateral-by-contract and the generated higher profit returns, as well as the limited capital of Islamic banks compared to their conventional counterparts, drives Islamic banks to lend to small firms (Shaban, Duygun, Anwar & Akbar, 2014). Conventional banks obviously turn down less profitable firms given their inherent risk; however, Islamic banks, which are subject to the adverse selection problem, may lend to such firms (Minhat & Zulkharnaini, 2017). The negative coefficient of the kernel propensity score estimates for size implies that micro and small firms measured by employment have a higher probability of participation than medium-sized ones. Negative kernel propensity score estimates for the sector imply that those firms that are specific to the trade and manufacturing sectors have a higher chance of participation, or higher predicted probability of accessing Islamic bank financing.

Table 3.
Propensity Matching Estimation Results

Covariates	Kernel Baseline Matching		
	Coefficient	z	p-Value
Size	- 0.3749465	-1.98	0.048
Sector	-0.3341292	-1.93	0.054
Constant	0.6751311	1.45	0.146
Pseudo R^2	0.0114		
Number of Obs	320		

Source: Field Survey (2020) computed using Stata 14.0

4.1.5. Balancing Test

Following matching, it is necessary to confirm if the distribution of the covariates in the control group mirrors that of the treated group units. Therefore, the weighted mean of the treated and control groups was subjected to balancing tests in order to check any violation of the common support assumption. The results in Table 4 show that there is no significant difference between the mean of the treated and control MSME groups.

Table 4.
Kernel Propensity Score Weight Balancing Test

Variable	Mean Control	Mean Treated	Diff.	t-statistics	P-value
Aceg	0.006	0.006	0.000	0.22	0.8267
Size	1.358	1.303	-0.056	1.02	0.3101
Sector	1.527	1.471	-0.057	0.93	0.3508

Source: Field Survey (2020) computed using Stata 14.0

4.1.6. Estimation Results

Full sample results without matching based on single DID with no covariate and single DID with covariates are shown below. In addition, a common support sub-sample based on kernel propensity-score matching DID treatment effects is also presented.

a. Full Sample Results

Table 5 shows trhe results for the single DID without covariates.This encompasses the outcome variable and treatment variable, estimated using the fixed effects estimator that controls time- invariant unobserved factors. The single DID results with covariates include outcome variable, treatment variable, and covariates, and is estimated using the fixed effect estimator that controls for time invariant unobserved factors. The results for estimated equations (1) and (2) indicate the impact of access to Islamic bank financing on employment growth. The DID treatment effects in equation (1) show that participation in Islamic banking financing is found to have a significant and positive effect on employment growth of around 1.5% relative to non-beneficiary MSMEs and controlling for time

dummies. This clearly shows that beneficiary MSMEs have achieved higher job creation of 1.5% compared to the counterfactuals. After controlling for observable factors, i.e. firm size and sector, in equation (2) of DID with covariates, in Table 1.3 however it is positive and statistically significant, although the average treatment effects fall to 1.3%. as expected. This means that the beneficiary MSMEs increase job creation by 1.3% compared to the counterfactuals.

Table 5.
Impact on Employment Growth (Full Sample)

Variable	Difference in Difference Treatment Effect	
	Without covariates	**With covariates**
DID	0.015 (8.09)***	0.013 (7.04) ***
Size	-	0.006 (6.416)***
Sector	-	0.004 (4.352) ***
_cons	-	-
Fixed effects		
Time dummies		
R²	0.18	0.21
Obs	1280	1280
Number of firms	320	320

***Significant at 1%

Source: Field Survey (2020) computed using Stata 14.0

b. Sub- Sample Results (Common Support)
Table 6 shows the results for the kernel propensity score DID treatment effect based on common support. The results for estimated equation (4) show that participation in Islamic banking financing has a significant and positive effect on employment growth of around 1.6% compared to non-beneficiary MSMEs, controlling for time dummies and time-invariant unobserved heterogeneity. Interestingly, the results for the sub-sample based on common support differ from those of full sample, as the impact on employment growth increases to 1.6%.

Table 6.
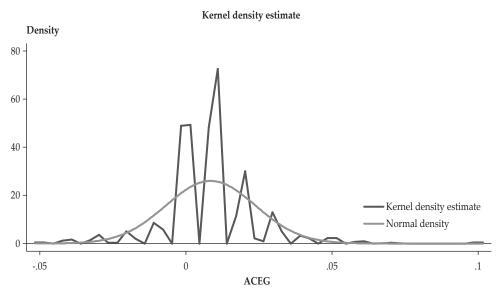**Matched Sub-Sample Output Results (Common Support)**

Variable	DID Treatment Effect Based on Kernel Propensity Common Support
DID	0.016 (8.69)***
Size	-
Sector	-
_cons	-
Fixed effects	
Time dummies	
R²	0.22
Obs	1280
Number of firms	320

***Significant at 1%.

Source: Field Survey (2020) computed using Stata 14.0

c. Diagnostic Robustness Tests

Referring to the model of interest in this study, i.e. the kernel propensity matching DID average treatment effect. Diagnostic tests were conducted in this regard in order to test the competency and robustness of the model. The results in appendix VII indicate that there is no multicollinearity problem among the predictor estimates. A normality test was also conducted using kernel density, and the results shown in Figure 1 indicate that the errors of the outcome variable are normally distributed. After testing for constant variance using the Breusch-Pagan /Cook-Weisberg test, the results in appendix VIII show the presence of heteroskedasticity in the kernel propensity matching DID average treatment effect model. However, this econometric problem was corrected by re-estimating the model using robust standard errors.

kernel = epanechnikov, bandwidth = 0.0016

Source: Field Survey (2020) computed using Stata 14.0

Figure 1.
Kernel Density Normality Results

4.2. Robustness of the Results

The results for the DID frameworks above capture the mean or average effects. However, the distributional effect is also crucial. The distribution of the dependent variable can change in many ways, which are only partially revealed or not revealed at all by examining the averages. Therefore, to examine the effects of Islamic banking inclusion on the distribution of the outcome variable (ACEG), quantile difference-in-difference was employed and estimated at the 10th, 25th, 75th and 90th percentiles. This was intended to help check the robustness of our findings.

4.2.1. Quantile Difference in Difference (QDID) for ACEG

The results in Table 7 show that the QDID estimates in the 10th and 90th percentiles indicate a positive and significant effect on the outcome variable, employment growth. For the QDID estimates in respect of the 25th, 50th and 75th percentiles, although they are positive they are insignificant. In the 10th percentile of the PSM DID quantile model, the parameter estimate of the average treatment effect is 0.020, which is significant at the 1% level. Therefore, the treated firms, in comparison with their control firm counterparts, recorded an increase in employment of 2 percent in the 10th percentile distribution. Finally, in the 90th percentile of the PSM DID quantile model, the parameter estimate of the average treatment effect is also 0.020, also significant at the 1% level. Consequently, in comparison with their control firm counterparts, the treated firms recorded an increase in employment of 2 percent in the 90th percentile distribution of the outcome variable.

Table 7.
PSM Quantile DID Estimation Results for ACEG

Variable	PSM Quantile Difference in Difference Models				
	0.1 Quantile	0.25 Quantile	0.5 Quantile	0.75 Quantile	0.90 Quantile
DID	0.020 (0.006)***	0.010 (0.010)	0.010 (0.010)	0.010(0.008)	0.020 (0.006)***
Size	-0.375 (.189)***	-0.375 (0.189)**	-.0375 (.189)**	-.0375(.189)**	-.0375 (.189)**
Sector	-0.334(0.173)***	-0.334 (0.173)*	-0.334 (.173)*	-0.334 (.173)*	-0.334 (.173)*
_cons	0.675 (.464)***	.675 (.464)	0.675 (.464)	0.675 (.464)	0.675 (.464)
R^2	0.16	0.14	0.10	0.20	0.13

***Significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

4.3. Analysis

From the DID framework without covariates, the value of R^2 is 0.18. This shows that around 18% of the outcome variable is explained by the participation and time dummy variables. In other words, the explanatory variables determine around 18% of thre variation in the average treatment effect. Based on the statistics, the model is statistically significant at the 1% level, implying that the parameters are jointly significant in the model and play a significant role in influencing employment growth. With regard to the DID framework with the inclusion of covariates, the value of R^2 is 0.21. This shows that around 21% in the outcome variable is explained by the participation and time dummy variables and control variables. In other words, the explanatory variables determine around 21% of the variation in the average treatment effect. Based on the statistics, the model is statistically significant at the 1% level, implying that the parameters are jointly significant in the model and play a significant role in influencing employment growth.

In the DID framework without covariates, the parameter estimate of the average treatment effect is 0.015, which is significant at the 1% level. Therefore, in comparison to their control firm counterparts, the treated firms recorded an increase in employment of 1.5 percent. In the DID framework with the inclusion of covariates, the parameter estimate of the average treatment effect is 0.013, which

is significant at the 1% level. Consequently, in comparison to their counterfactuals, the treated firms recorded an increase in employment of 1.3 percent.

Focusing on the model of interest in this study, which is based on common support, i.e. the kernel propensity matching DID average treatment effect, the value of R^2 is 0.22. This shows that around 22% of the outcome variable is explained by the participation and time dummy variables based on common support. In other words, the explanatory variables determine around 22% of the variation in the average treatment effect. Based on the statistics, the model is statistically significant at the 1% level, implying that that the parameters are jointly significant in the model and play a significant role in influencing firms' employment growth. Moreover, the parameter estimates of the average treatment effect in the kernel propensity matching DID average treatment effect model is 0.016, which is significant at the 1% level. This means that in comparison to their counterfactuals, the treated firms recorded an increase in employment of 1.6 percent. This is consistent with the findings of Ayyagari, Juarros, Martinez Peria & Singh (2016), Dinh, Mavridis and Nguyen (2010), and Kurdaly (2013), who found that firms with access to loans exhibited higher employment growth than those without access to finance. This highlights the importance role of finance in promoting firm growth, and employment growth in particular.

Based on the descriptive analysis, this study has found that Islamic banks mainly use sharia-compliant debt-based instruments when financing MSMEs. The nature of the interaction between banks and their clients in conventional arrangement is purely a debtor-creditor relationship, while its Islamic banking counterpart is more of a partnership, paving the way for collateral-free financing. This study further found that all the 2017 beneficiaries of Islamic bank financing provided collateral before receiving credit from the Islamic bank (Jaiz Bank). This clearly demonstrates that the current financing practice of Islamic banks deviates from theory by neglecting equity or PLS financing, i.e. Mudaraba and Musharaka financing, in favour of sharia-compliant debt-based financing, e.g. Murabaha and Ijarah. In the absence of PLS financing, collateral may represent a serious barrier to accessing external finance for MSMEs.

The quantile difference-in-difference results based on common support reveal that the average treatment effect is only significant in the 10th and 90th percentiles, whereas the 25th, 50th and 75th percentiles show an insignificant but positive relationship. Specifically, the QDID estimates in the 10th and 90th percentiles show a positive and significant effect on the outcome variable, employment growth. For the QDID estimates in respect of the 25th, 50th and 75th percentiles, although they are positive, confirming the theory, they are insignificant. This is not surprising, given that Islamic banks are skewed to non-participatory financing. Islamic banks do consider SMEs, usually based on sharia-compliant debt-based financing, but impose higher profit margins due to the asymmetric information problem (Huda, 2012). Islamic banks use Murabaha contracts in financing small business, but build in exploitative higher profit margins (Shaban, Duygun, Anwar & Akbar, 2014). If the cost of obtaining credit is high, firm's employment can be negatively affected, as can their employment decisions (Benito & Hernando, 2002; Cantor, 1990; Fernandes, Kontonikas & Tsoukas, 2014; Nickell & Nicolitsas, 1999; Sharpe, 1994). Unlike participatory financing, this kind of asset-backed financial

instrument is usually for short-term periods. Short-term financing with insufficient capital might inhibit SMEs' employment growth (Achy & Selim, 2017). This may largely explain the insignificant relationship in the 25th, 50th and 75th percentiles of the distribution of the outcome variable.

V. CONCLUSION AND RECOMMENDATIONS
5.1. Conclusion
This study has evaluated the impact of access to Islamic banking financing on SME employment growth. Most importantly, the study has clearly shown the advantages of using quasi-experimental techniques to assess the impact of Islamic banking inclusion aimed at supporting the firm-level investment of MSMEs to achieve greater business expansion and considerable growth. This approach to mitigating issues of selection bias in financing programs has been ignored for too long in the Islamic banking literature.

Using a longitudinal survey design, we analysed and compared the employment growth of two distinct units of analysis. The first MSME unit consisted of firms that had received Islamic banking financing, while the MSMEs in the other unit had not received financing. The study employed a combination of propensity score and DID techniques. Using this combination of techniques to deal with selection bias, the study concludes that both the treated and non-treated groups exhibited similar baseline characteristics following matching, which fulfils the DID assumptions in the financing program evaluation. Using the kernel prosperity score DID treatment effect, we conclude that access to Islamic bank financing has a significant and positive impact on employment growth. Furthermore, using QDID techniques, it is concluded that the employment effect is only significant in the first and the last percentiles, i.e. the 10th and 90th.

However, caution is required in drawing this conclusion. Although the study found a positive and significant employment effect, the external validity of the results is an issue of great concern which needs to be taken into consideration. This study analysis is limited to credit lines managed by Jaiz Bank Plc in Kano Metropolis. Therefore, this study's conclusion mainly reflects the effectiveness of this particular Islamic bank, so the findings cannot be generalised to other Islamic banks or banking windows in the country. In addition, the study employed the non-probability sampling technique in collecting data from the MSMEs. Consequently, the findings cannot be generalised because of the use of a non-scientific sampling strategy in selecting or choosing the target respondents. This therefore means that the findings of this paper cannot be generalised to other states in Nigeria or other countries with Islamic economies.

In essence, Islamic banks in Nigeria, and Kano state in particular, given the large Muslim population, fostered MSME financial inclusion in 2017 mainly for religious reasons. In this regard, we conclude that Islamic bank financing is effective in relaxing credit constraints for MSMEs that are financially excluded from the financial system for religious concerns. Therefore, we submit that the current policies designed by policymakers in developing the Islamic banking system for Nigeria are closely linked and effective in promoting financial inclusion by attracting Muslim enterpreneurs to the formal financial system to seek financing

from Islamic banks. Therefore, access to Islamic bank financing by Islamic SMEs is instrumental in alleviating unemployment crises in Nigeria.

5.2. Recommendations

Given the considerable Muslim population in Nigeria, it is recommended that the Nigerian government should encourage the establishment of more local Islamic banks and to attract foreign ones into the country, as this could promote Islamic MSME access to finance, thereby boosting job creation.

In practice, banks, including Islamic ones, require tangible collateral as a condition for granting credit facilities. However, most firms in developing countries lack tangible assets, but instead have moveable assets such as factory machinery, vehicles and equipment, which are rarely accepted by banks. There is therefore a need for legal reforms that permit the use of moveable collateral and which could be helpful in improving MSME access to finance, fostering financial inclusion and engendering job creation in developing countries such as Nigeria.

Despite MSMEs' potential for job creation, they suffer considerable financing gaps globally, particularly in Nigeria. Sharia-compliant debt-based financing instruments such as Murabaha and Ijara have certain interesting features; for example, linking financing to assets, which could allow Islamic banks to offer collateral-free financing based on non-participatory modes. It is therefore recommended that Islamic banks should hold leased or sold assets as collateral, as the ownership will reside with them and then later be transferred after full payment is received. However, in the case of any inappropriate behaviour, Islamic banks can enforce the sale of the assets and recover their funds. These instruments could foster MSME access to Islamic bank finance and thereby maximise their employment growth potential.

It is further suggested that improvement of the Islamic banking system using PLS financing, especially Musharaka, could foster MSMEs' financial inclusion and therefore have an impact on job creation, given the financial instrument's long-term, risk sharing features.

5.3. Suggestions for Further Research

This study mainly centres on Islamic banking inclusion for religious concerns. Further studies should evaluate real Islamic banking inclusion for SMEs characterised by collateral-free features.

The study is limited to Kano State in Nigeria. For appropriate comparison and generalisation, it should be replicated in other states in the country.

The study was conducted in Nigeria, a country blessed with a growing Islamic banking system. Similar studies need to be conducted in countries with well-developed Islamic banking systems.

The study matches the treated and control groups around covariates such as size and sector. Future studies should include other covariates such as firm age, and initial conventional debt in the year before treatment as a dummy variable if any as well as several lags of the pre-treatment outcome variables as a matching yardstick.

The study analysis is limited to examining the average treatment effects; further studies need to be conducted to investigate the link between financing conditiosn and employment growth in SMEs.

The study used a single measure of employment growth; i.e., changes in employment growth. Further studies should consider other indicators of such growth, for example, annual relative employment growth, average annual employment growth or annual total employment, for robustness.

Finally, the study evaluates the effect of overall access to Islamic bank financing on employment growth. Further studies should examine the differential effect of individual Islamic banking financing products on employment growth, as this would highlight the most efficient and helpful financing products for boosting job creation.

REFERENCES

Abdouli, A. H. (1991). Access to finance and collaterals: Islamic versus western banking. *Journal of King Abdulaziz University: Islamic Economics*, *3*(1), 55–62.

Abedifar, P., Hasan, I., &Tarazi, A. (2016). Finance-growth nexus and dual-banking systems: Relative importance of Islamic banks. *Journal of Economic Behavior & Organization*, *13(2)*, 198-215.

Aburime, U. T., & Alio, F. (2009). Islamic banking : Theories, practices and insights for Nigeria. *International Review of Business Research, 5*(1), 321–339.

Achy L. and Selim R. (2017). Micro and small enterprises in egypt: access to finance and job creation dynamics. *Economic Research Forum 23rd Annual Conference*, Amman, Jordan.

Aivazian, V. A., & Santor, E. (2008). Financial constraints and investment: assessing the impact of a World Bank credit program on small and medium enterprises in Sri Lanka. *Canadian Journal of Economics/Revue canadienne d'économique, 41*(2), 475-500.

Aggarwal, R. K., & Yousef, T. (2000). Islamic banks and investment financing. *Journal of Money, Credit and Banking, 32*(1), 93–120.

Alhabashi, K. (2015). *Financing for small and medium enterprises: The role of Islamic financial institutions in kuwait* (Doctoral Dissertation, University of Gloucestershire). Retrieved from http://eprints.glos.ac.uk/3428/

Algaoud, L.M. & Lewis, M.K. (2007). Islamic critique of conventional financing. In M. K Hassan & M.K. Lewis (Eds.), *The Handbook of Islamic banking* (pp. 45-46). Cheltenham: Edward Elgar Publishing Limited.

Arráiz, I., Meléndez, M., & Stucchi, R. (2014). Partial credit guarantees and firm performance: evidence from Colombia. *Small Business Economics*, *43*(3), 711-724.

Malik, A. M., & Ashraf, B. (2019). Islamic Banks' Financing and Employment Generation: The Case of Punjab, Pakistan. *Journal of Islamic Business and Management*, *9*(1), 217-228.

Ayyagari, M., Juarros, P. F., Martinez Peria, M. S. and Singh, S. (2016). Access to finance and job growth: Firm level evidence across developing countries. *Policy Research Working Paper* 7604. Washington, D.C: World Bank Group.

Ayub, M. (2007). *Understanding Islamic Finance*. John Wiley & Son Ltd.

Bazza, M. I., Maiwada, B. Y., & Daneji, B. A. (2014). Islamic financing: A panacea to small and medium scale enterprises financing problems in Nigeria. *European Scientific Journal*, *10*(10), 432–444.

Beck, T. (2013). Bank financing for SMEs–lessons from the literature. *National Institute Economic Review*, 225(1), 23–38.

Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking and Finance*, *30*(11), 2931-2943.

Beck, T., Demirgüç-Kunt, A. and Maksimovic, V. (2008). Financing patterns around the world: are small firms different? *Journal of Financial Economics*, 89(3), 467–487.

Bello, T. (2003). *Attacking unemployment hurdles in the fragile economies of the Sub–Saharan Africa: The experience of Nigeria*. Paper presented at the Economics for the Future Conference, Cambridge, United Kingdom. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.200.1318&rep=rep1&type=pdf

Benavente, J. M., Crespi, G., & Maffioli, A. (2007). Public support to firm-level innovation: an evaluation of the FONTEC program, *OVE Working Paper 05-07*. Inter-American Development Bank.

Benito, & Hernando, I. (2002). Extricate: financial pressure and firm behaviour in Spain. *Bank of Spain Discussion Paper* No. 0227.

Binelli, C., & Maffioli, A. (2007). A micro-econometric analysis of public support to private R&D in Argentina. *International Review of Applied Economics*, *21*(3), 339-359.

Bjorvatn, K., 1998. Islamic economics and economic development. *Forum for Development Studies*, *25*(2), 229–243.

Cassano, F., Jõeveer, K., & Svejnar, J. (2013). Cash flow vs. collateral-based credit: Performance of micro, small and medium-sized firms in transition economies. *Economics of Transition*, *21*(2), 269-300.

Cantor, R. (1990). Effects of leverage on corporate investment and hiring decisions. *Federal Reserve Bank of New York Quarterly Review,15*(2), 31–41.

Castillo, V., Figal-Garone, L., Maffioli, A., Rojo, S., & Stucchi, R. (2016). The effects of knowledge spillovers through labor mobility. *IDB Working Paper Series* 448.

Chudnovsky, D., López, A., Rossi, M., & Ubfal, D. (2006). Evaluating a program of public funding of private innovation activities: An econometric study of FONTAR in Argentina, *OVE Working Paper* 16-06.Inter-American Development Bank.

Dabo D.A, (2006). Financing of small and medium sized enterprises in Nigeria (Doctoral dissertation, Loughborough University, UK). Retrieved fromhttps://repository.lboro.ac.uk/articles/thesis/Financing_of_small_and_medium_sized_enterprises_in_Nigeria/9492053

Da Silva, A. M. A., Resende, G. M., & Silveira Neto, R. (2009). Eficácia do gasto público: uma avaliação do FNE, FNO FCO. *Estudos Econômicos São Paulo*, *39*(1), 89-125.

De Negri, J.A., A. Maffioli, C. M. Rodriguez & G. Vázquez (2011), The impact of public credit programs on Brazilian firms. *Inter-American Development Bank Working Paper 293*.

Dinh, H. T., Mavridis, D. A., & Nguyen, H. B. (2010). The binding constraint on firms' growth in developing countries. *Policy Research Working Paper 5485.* Washington, D.C: WorldBank.

El-Ghattis, N. (2011). Islamic banking's role in economic development: Future outlook. *Centre of Islamic Finance, Bahrain Institute of Banking*.

Elasrag, H. (2016), Islamic finance for SMES. *Journal of Economic and Social Thought*, *3*, 438-453.

Eslava, M., Maffioli, A., & Meléndez, M. (2011). Second-tier government banks and firm performance: Micro-evidence from Colombia. Inter-American Development Bank, *OVE working paper* 294.

Faisol, F. (2017). Islamic bank financing and it's impact on small medium enterprise's performance. *Etikonomi, 16*(1), 13–24.

Fernandes, F., Kontonikas, A. and Tsoukas, S. (2014). On the real effects of financial pressure: Evidence from euro area firm-level employment during the recent financial crisis. *Scottish Institute for Research in Economics, Discussion Paper*, 2014-020.

Hamzah, A. A., & Gazali, H. M. (2015). The Roles of Islamic financing towards the successful of Islamic micro entreprise: A Study in Labuan. *International Journal of Business, Economics and Law*, *8*(1), 2289-1552.

Heckman, J. J., Ichimura, H., & Todd, P. E. (1997). Matching as an econometric evaluation estimator: Evidence from evaluating a job training programme. *The Review of Economic Studies*, *64*(4), 605-654.

Heckman, J. J., Ichimura, H., & Todd, P. (1998). Matching as an econometric evaluation estimator. *The Review of Economic Studies*, *65*(2), 261-294.

Huda, A. N. (2012). The development of Islamic financing scheme for smes in a developing country: The Indonesian case. *Procedia - Social and Behavioral Sciences*, *52*, 179–186.

Hove, P., Sibanda, K., & Pooe, D. (2014). The impact of Islamic banking on entrepreneurial motivation, firm competitiveness and performance in South African small and medium enterprises. *Mediterranean Journal of Social Sciences*, *5*(15), 165–174.

International Finance Corporation (2013), *IFC Jobs Study: Assessing Private Sector Contributions to Job Creation and Poverty Reduction*, International Finance Corporation, Washington, DC.

Islamic Development Bank & CIBAFI (2012**)** *7th IDB global forum on Islamic finance:Role of Islamic finance in job creation.* Khartoum, Sudan.

Iqbal, Z. & Mirakhor, A. (2013). Islam's perspective on financial inclusion. In Z. Iqbal & A. Mirakhor (Eds.), *Economic development and Islamic finance* (pp. 179-200). Washington, DC: The World Bank.

Jackson, S. L. (2009). *Research methods and statistics: A critical thinking approach*. Cengage Learning.

Jaiz Bank (2015). *Annual report of Jaizbank plc 2015*.Retrieved from www.jaizbankplc.com

Jinjiri Ringim, K. (2014). Perception of Nigerian Muslim account holders in conventional banks toward Islamic banking products. *International Journal of Islamic and Middle Eastern Finance and Management,7*(3), 288-305.

Kahf, M. (1999). Islamic banks at the threshold of the third millennium. *Thunderbird International Business Review, 41*(45), 445-460.

Kersten, R., Harms, J., Liket, K., & Maas, K. (2017). Small firms, large Impact? A systematic review of the SME finance literature. *World Development*, *97*, 330-348.

Kewuyemi, K. M. (2015). Customers' awareness, attitude and patronage of Islamic banking in Nigeria. *Islam and Civilisational Renewal*, *274*(2625), 1-21.

Kumar, R. (2017). Targeted SME financing and employment effects: what do we know and what can we do differently? *Jobs Working Paper* (3) World Bank, Washington, DC.

Kurdyla, M. (2013). *Do SME credit constraints inhibit job creation? spurring employment in developing country firms* (Doctoral dissertation, Georgetown University, Washington, DC). Retrieved from https://repository.library.georgetown.edu/bitstream/handle/10822/558625/Kurdyla_georgetown_0076M_12184.pdf

Lopez-Acevedo, G., & Tan, H. (2010). Impact evaluation of SME programs in Latin America and Caribbean. Washington, DC: *World Bank Publications*.

Lopez-Acevedo, G. and H. Tinajero, M. (2010) Mexico: Impact evaluation of SME programs using panel firm data. *World Bank Policy Research Working Paper 5186.*

Minhat, M., & Dzolkarnaini, N. (2017). Which firms use Islamic financing? *Economics Letters*, *150*, 15-17.

Muneer, S., & Ahmad, R. A. (2017). Impact of financing on small and medium enterprises (SMEs) profitability with moderating role of Islamic finance. *Information Management and Business Review*, *9*(2), 25-32.

Nickell, S., & Nicolitsas, D. (1999). How does financial pressure affect firms? *European Economic Review*, *43*(8), 1435–1456.

Piza, C., Cravo, T. A., Taylor, L., Gonzalez, L., Musse, I., Furtado, I., & Abdelnour, S. (2016). The impact of business support services for small and medium enterprises on firm performance in low-and middle-income countries: A systematic review. *Campbell Systematic Reviews*, *12*(1), 1-167.

Pytkowska, J., & Korynski, P. (2016). Financing gap and SME employment growth : Beyond access to finance. *Microfinance Center (MFC).*

Sapovadia, V. K. (2015). Jaiz Bank, Nigeria: A case study on non-interest bank. *Munich Personal RePEc Archive*, 68763. Retrieved from https://mpra.ub.unimuenchen.de/68763/1/MPRA_paper_68763.pdf

Shaban, M., Duygun, M., Anwar, M., & Akbar, B. (2014). Diversification and banks' willingness to lend to small businesses: Evidence from Islamic and conventional banks in Indonesia. *Journal of Economic Behavior & Organization, 103*, S39-S55.

Sharpe, S. A. (1994). Financial market imperfections, firm leverage, and the cyclicality of employment. *The American Economic Review*, *84*(4), 1060–1074.

Shepherd, D., & Wiklund, J. (2009). Are we comparing apples wiith apples or apples with oranges? Appropriateness of knowledge accumulation across growth studies. *Entrepreneurship: Theory and Practice*, *33*(1), 105–123.

SMEDAN & NBS (2013). *SMEDAN and National Bureau of Statistics Collaborative Survey: Selected findings.* Retrieved fro

https://www.smedan.gov.ng/images/PDF/2013-MSME-Survey-Summary-Report.pdf

SMEDAN & NBS (2017). *SMEDAN & Nigeria Bureau of Statistics (NBS): survey report on micro, small, and mediumenterprises in nigeria.*Retrieved fromhttp://smedan. gov.ng/images/NATIONAL%20SURVEY%20OF%20MICRO%20SMALL%20 &%20MEDIUM%20ENTERPRISES%20(MSMES),%20%202017%201.pdf

Tan, H. (2009). Evaluating SME support programs in Chile using panel firm data. *World Bank Policy Research Working Paper Series, 5082.*

Villa, J. M. (2016). diff: Simplifying the estimation of difference-in-differences treatment effects. *The Stata Journal, 16*(1), 52-71.

World Bank (2014). *Global financial development report 2014: Financial inclusion.* Washington, DC: World Bank.

World Bank. (2014*). The shape of future jobs. World bank Jobs and development blog.* Retrieved from http://blogs.worldbank.org/jobs/shape-future-jobs.

World Bank Group & Islamic Development Bank, (2015). *Joint World Bank-Islamic Bank policy report: Leveraging Islamic finance for small and medium enterprises (SMEs).* World Bank, Washington, DC.

Zaher, T. S., & Kabir Hassan, M. (2001). A comparative literature survey of Islamic finance and banking. *Financial Markets, Institutions & Instruments, 10*(4), 155-199.

Zulkhibir, M. (2016). Financial inclusion, financial inclusion policy and Islamic finance. *Macroeconomics and Finance in Emerging Market Economies, 9*(3), 1-18.

APPENDIX I
Unemployment Rate and Conventional SMEs loan in Nigeria

Years	Unemployment rate % (Annual)	Commercial Bank loan to SME (N million) (N million)	Commercial Bank credit (N million)	Commercial Bank loan to SMEs as a percentage of total credit
2000	3.95	44,542.3	587,999.9	7.58
2001	4.03	52,428.4	844,486.2	6.21
2002	4.11	82,368.4	948,464.1	8.68
2003	4.06	90,176.5	1,203,199.0	7.49
2004	3.98	54,981.2	1,519,242.7	3.62
2005	3.87	50,672.6	1,991,146.4	2.54
2006	3.67	25,713.7	2,609,289.4	0.99
2007	3.44	41,100.4	4,820,695.7	0.85
2008	3.42	13,512.2	7,799,400.1	0.17
2009	3.76	16,366.5	9,667,876.7	0.17
2010	3.77	12,550.3	9,198,173.1	0.14
2011	3.70	15,611.7	9,614,445.8	0.16
2012	3.69	14,699.95	10,071,002.60	0.15

Source: World Bank (Unemployment rate), CBN Statistical Bulletin (2012): SMEs loan

APPENDIX II
Nigerian Islamic Banks and Banking Window

Banks	Full-fledged	Islamic Banking Windows
JAIZ Bank	✓	-
TAJ Bank	✓	-
Sterling Bank	-	✓
Stanbic IBTC	-	✓
Keystone Bank	-	✓
Standard Chartered Bank	-	✓

Source: Author's Compilation

APPENDIX III
Number of Firms by Employment, Age and Sector in 2016

	Number of Employee			Business age			Sector				
	Micro	Small	Medium	young	Mature	Old	Manufac-turing	Trade	Agr	Trans	Total
	1-9	10-49	50-199	1-5	6-15	16 & above					
Treatment group	77	42	0	53	65	1	61	54	3	1	119
Control group	130	71	0	106	92	3	89	110	2	0	201
Total	207	113	0	159	168	4	150	164	12	1	320

Source: Field Survey (2020) computed using SPSS 22.0

APPENDIX IV
Details of Beneficiary Financing

FINANCING CATEGORY			
	Frequency	**Percent**	**Cumulative Percent**
Murabaha	116	97.5.0	97.5
Salam	0		
Ijarah	3	2.5	100.0
BBA	0		
Mudharaba	0		
Musharaka	0		
Total	119		
TENDER COLLATERAL TO ISLAMIC BANK			
Yes	119	100.0	100.0
No	0	0	0
COLLATERAL CATEGORY			
Land & Building	103	86.6	86.6
Machinery	0	0	0
Personal assets (House)	16	13.4	13.4
Intangible assets (Inventories)	0	0	0
Others	0		0

Source: Field Survey (2020) computed using SPSS 22.0

APPENDIX V
Control Group Respondent's Profile

GENDER			
	Frequency	**Percent**	**Cumulative Percent**
Male	188	93.5	93.5
Female	13	6.5	100.0
Total	201	100	
RELIGION			
Islam	186	92.5	92.5
Christian	15	7.5	100.0
Total	201	100.0	

Source: from field Survey (2020) computed using SPSS 22.0

APPENDIX VI
Treated Group Respondent's Profile

GENDER			
	Frequency	**Percent**	**Cumulative Percent**
Male	100	84.0	84.0
Female	19	16.0	100.0
Total	119	100.0	
RELIGION			
Islam	110	92.4	92.4
Christian	9	7.6	100.0
Total	119	100.0	

Source: Field Survey (2020) computed using SPSS 22.0

APPENDIX VII
Kernel Propensity Score Matching-DID Treatment Effect Test Results

Variables	VIF	Tolerance
_diff	5.00	0.200000
Treat	4.00	0.250000
Time	2.00	0.500000
Mean VIF	3.67	

Source: Field Survey (2020) computed using Stata 14.0

APPENDIX VIII
Kernel Propensity Score Matching-DID Treatment Effect Hetroskedasticity Test Results

F-statistics	Probability
3.70e+06	0.0000

Source: Field Survey (2020) computed using Stata 14.0

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