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Determinants of entrepreneurial propensity of Nigerian undergraduates: an empirical assessment

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Determinants of Entrepreneurial Propensity of Nigerian undergraduates: an empirical assessment

Abstract

The specific factors that influence the entrepreneurial inclination of students were studied with a view to designing appropriate policies on entrepreneurship within tertiary institutions. The sample for the study consisted of 7,560 students from a total of 25 tertiary institutions with 83% response rate. While we found that entrepreneurial interest among Nigerian students is quite high, the expression of this interest in practice is rather low. The main factors found to significantly explain entrepreneurial interest are parents' educational qualifications, family entrepreneurial history, family socio-demographics, students' entrepreneurial experience, and students' socio-demographics. Of the fourteen variables identified as being central in encouraging students' entrepreneurial interests, only five can be defined as necessary, though but not sufficient, conditions to stimulate interest: gender, number of children by father, position among mother's children, father's monthly income and entrepreneurial education. This has policy implications both for government and the institutions. The study is the first of its magnitude in Nigeria and provides baseline information for researchers and policy makers who need to better understand the dynamics of entrepreneurship among Nigerian youth.

Keywords: entrepreneurship; entrepreneurial interest; students; tertiary institutions; Nigeria

1.0 Introduction

Entrepreneurship is a major catalyst that drives the economy of most nations. Besides being the engine by which new ideas and novel approaches are introduced continually into businesses and the market place, entrepreneurship guarantees economic returns from diverse forms of activities – including Research and Development (R&D). In a more specific sense, entrepreneurship is the vehicle on which innovation rides. Within this context, entrepreneurs are considered as “champions” of some sort who convert ideas into products and services and ultimately create wealth and reduce unemployment.

There exists an increasing interest in entrepreneurship in many parts of the world, especially in developing economies. This is because entrepreneurial activity (typified by new venture formation) is considered as a means of revitalizing the economy and a way of coping with unemployment problems that characterise most developing economies. Thus, more people, and very recently undergraduates, are being encouraged into owning and growing small businesses. The effectiveness of policies and programmes designed for this purpose is, however, limited by a shortage of relevant knowledge. Much of what is known about entrepreneurship

today has emanated from the context of developed economics and is not always applicable in developing economics. To fill that knowledge gap, particularly in a developing country like Nigeria, two key questions beg immediate attention: 'how inclined are students towards entrepreneurship?' and 'what factors most significantly influence their entrepreneurial propensity?'

This paper attempts to answer these questions using the findings of a large survey of Nigerian undergraduates which took place between November, 2006 and February, 2007¹. This being the first study of this magnitude in Nigeria, it provides baseline information for researchers and policy makers who need to better understand the dynamics of entrepreneurship among the youth particularly in developing economics. The baseline figures from this study are considered particularly useful in characterising the entrepreneurial landscape in Nigerian tertiary institutions. This is necessary because nurturing the entrepreneurial potential among the youth has recently become apparent to policy makers and educators. For instance, in 2006, the National Universities Commission (NUC)² mandated every university in Nigeria to establish an Entrepreneurship Development Centre (EDC) and to offer courses in entrepreneurship to all students using a curriculum developed by the NUC. Additionally, the National Board for Technical Education (NBTE)³ organised a series of capacity building workshops for entrepreneurship teachers in all Nigerian polytechnics in 2009. The methodology and outcomes of this research enable some comparison with similar national and international studies, as well as providing a firm basis for further national research.

The next section presents a review of the literature followed by the development of hypotheses on entrepreneurial propensity. Specifically we look at gender, family background, ethnicity, academic performance and risk-averse attitude. Next, methodology is explained. The results from the findings are presented along with a

¹ The study was designed and implemented by the National Centre for Technology Management (NACETEM) with funding from the Nigerian government through the Federal Ministry of Science and Technology (FMST).

² The NUC is the apex regulatory body in charge of the university education system in Nigeria. It is responsible, among others, for ensuring the content and quality of courses offered and the adequacy of instructional infrastructure.

³ The NBTE is similar in form and function to the NUC but is responsible for Nigeria's polytechnics.

discussion of the hypotheses in Section 5. The paper concludes by discussing the implications with respect to researchers, educators, and policy makers. Closing remarks are offered as to some directions for further research.

2.0 Literature Review

2.1 Entrepreneurship and Unemployment in Nigeria: a brief overview

Until recently in Nigeria, government's approach to solving the problem of unemployment has historically been unmindful of the potential role of entrepreneurship and entrepreneurial education despite many attempts to design tangible and lasting policies and/or programmes to support employment generation in the country. The high unemployment rate which was put at about 37% (NPC, 2004) may well be a consequence of the foregoing. Statistics show, for example, that during the 1994-97 period, there were about 260,000 finalists in the nation's tertiary institutions, with a total of 100,000 registered unemployed persons already in the labour market. During the same period, only a total of about 20,000 registered senior level and professional vacancies existed in the labour market to take care of the potentially unemployed graduates. By 2000-2003, the total number of finalists in tertiary institutions was about 420,000; by which time total registered unemployment had increased to about 150,000. However, total registered senior level and professional vacancies marginally increased to approximately 24,000 (Ajetomobi and Ayanwale, 2005). From the foregoing, it is indicated that between 1994 and 2003, the labour market grew by about 58% while employment opportunities increased by only 20% between the same period. The existence of such a huge gap could be an indication that propensity for entrepreneurship is rather low or that the pre-conditions for successful entrepreneurship are largely absent.

2.2 Student entrepreneurial Inclinations: what do we presently know?

Much relevant research has focused on university student entrepreneurial aspirations (Table 1). One clear trend that comes out is the consistent increase in entrepreneurial interest (EI) over the past 3½ decades. This is not unconnected with

macro-environmental changes since the 1980s and the recent perceived success of e-commerce. For instance, self-employment rate in the US increased from 7.4% in 1975 to 9.7% in 1990 (Devine, 1994). In the UK, the self-employment rate grew from 7.7% in 1979 to 12.4% in 1987 (Hakim, 1988) and was around this level in the 1990s. Similar increases can be found in Canada (8.9% in 1987, and 10.9% in 1997), Netherlands (9.9% in 1987, and 11.3% in 1996) (1998 OECD Statistics). One fact that is not brought out in Table 1 is that the literature also points to an inconsistency between entrepreneurial aspirations and actual self-employment.

For instance, in the US, only a third of Harvard Business School graduates ended up working for themselves although 90% of the students had the dream of self-employment (Timmons, 1994). Furthermore, in a study of business school senior undergraduates, 55% preferred operating their own business given the complete freedom of choice, but only 5% of the respondents indicated they would probably choose to operate their own business after considering their actual situation and constraints (Brenner et al., 1991). Rosa and McAlpine (1991) reported that 40% of UK university graduates wished to start their own business, but only 5% had actually become self-employed or small business owners. Despite this wide gap between student aspiration and actual self-employment, there is an increasing trend in moving towards an attitude of entrepreneurship among students (Wang and Wong, 2004).

Insert Table 1 here

2.3 On the Determinants of Entrepreneurial Propensity

There is no consensus on the factors that drive entrepreneurial propensity; but a representative gamut of determinants could be identified from the literature. Gender and entrepreneurial education were found to be positively influential among Welsh students who reported that they are likely to set up a business venture within three years of graduation (Czuchry and Yasin, 2008). While policies broadly consistent with economic freedom (such as secure property rights, low taxes, and low regulations) were reported to lead to robust entrepreneurial propensity in Virginia (Goodbody, 2002) financial constraint, education and self-efficacy were found to

have much influence on Irish students' entrepreneurial intentions (Joshua and Russell, 2006). Family and community background had an important influence in the orientation towards entrepreneurship among British India and Chinese students (Stella, 2008). Wang and Wong (2004) found that entrepreneurial aspirations among Singaporean students was driven largely by family business experience, educational level and gender but hindered by inadequate business experience. Verheul et al (2002) suggest a strong indirect effect of gender on self-employment decisions in Europe and U.S.A. Candice et al (2001) concluded that in addition to government intervention, the French culture appears to have an important negative impact on entrepreneurship, though both are intertwined. Ramana and Jesper (2008) presented results based on a study of employed individuals in Denmark that peer interactions influence the likelihood of becoming an entrepreneur through two channels: by increasing an individual's likelihood to perceive entrepreneurial opportunities and by increasing the motivation to pursue such opportunities. This suggests that peer influence could endow individuals 'acquired self-efficacy' whereby they see themselves as having the potentials to succeed in entrepreneurship because a close acquaintance had been.

A common influence on entrepreneurship in Western countries is family background, where family origin in general was found to offer positive role models (e.g. Shapero & Sokol, 1982). A stylized fact emerging from research shows individuals whose parents were either self employed or business owners to be more likely to become entrepreneurs than those from families without such entrepreneurial experience (e.g. Dunn & Holtz-Eakin, 2000; Laferre, 2001). Such a family background is said to transport knowledge, skills, self-confidence and also positive attitudes towards entrepreneurship, thus facilitating entry of their children into entrepreneurship.

Although extant and prospective entrepreneurs generally identify lack of financial support as an obstacle to starting a new business, Grilo and Thurik (2004; 2005) reported that entrepreneurial interest is not significantly affected by perception about financial obstacles in Europe and the United States, probably due to the absence of credit rationing in the US and European business loan markets (Berger & Udell, 1992); and that financial constraints have no impact on actual entrepreneurship but is positively related to latent entrepreneurship. Similarly, Cheng (2006) established that finance does not restrict entrepreneurial choice of rural households in China. On

a general note, Parker (2005) contended that neither recent evidence nor economic logic supports the notion that borrowing constraint significantly impedes entry into entrepreneurship in the 21st century.

Public policies like antitrust, intellectual property, subsidies and a host of other policies are generally believed to either entrench or constrain entrepreneurial drive. Czuchry and Yasin (2008) concluded that government policy related to what? has a significant influence on the entrepreneurial propensity of Welsh students. Hart (2005) similarly concluded that well-designed and carefully implemented policy initiatives may enhance entrepreneurship just as poorly thought-through and badly managed efforts may produce negative effects. It comes out clearly from the preceding paragraphs that establishing the determinants of entrepreneurial interest in any given country context still requires empirical investigation. This is more so considering the fact that, though several factors may seem universally related to entrepreneurial interest, the direction of influence would vary by context and what is important within one context might not be in another.

3.0 Hypotheses on Entrepreneurial Interest

3.1 Gender

There seems to be a consensus on the fact that a gender-based entrepreneurial imbalance exists in almost any context. Among the seven background factors analysed by Wang and Wong (2004), gender was found to be the most significant factor influencing students' entrepreneurial interest in Singapore with females being less entrepreneurial. This finding is consistent with Czuchry and Yasin (2008) who associated this to the risk averse attitude of females. Orhan (1999) and OECD (1998) concluded on similar notes.

Similarly, EIM/EMSR (1996) found a higher survival rate for male entrepreneurs than females, associating the dispersion to gender discrimination in terms of credit facilities as reported by Verheul and Thurik (2001). The Global Entrepreneurship

Monitor (2003) reported that males are almost twice as likely to start a new business as females, tracing this diversity to the relatively higher income potential of men. Following from the foregoing, we test that:

H1: Gender is a significant determinant of students' level of interest in entrepreneurship; male interest being higher.

3.2 Family Entrepreneurial History

There seems to be a consensus on the proposition that the family is the primary agent of socialisation. Parents are seen as role models exercising both overt and covert technical influence on their wards as they set norms, values and orient behaviours in the course of daily life. Thus, the children on daily basis observe and imbibe certain latent values passed on to them by their parents, all of which shape their future personality and career.

This signals the likely significant influence of family entrepreneurial history on student's business interest. Stella (2008) in her study of the British Indian and Chinese student concluded that joining family-owned businesses motivates and thus, provide opportunities for realising entrepreneurial ambitions. Czuchry and Yasin (2008) also found that the entrepreneurial engagements of both parents are strongly correlated with the children's business interests. Davidson (1995) in his study of business owners in Sweden and Stanworth et al (1989) in their work on British actual and aspiring entrepreneurs concluded that parental entrepreneurial engagement influences entrepreneurial intentions among the youth. Verheul and Thurik (2002) noted that not only do entrepreneurs seem to inspire their wards to become self-employed, there is also substantial reason for their children to believe that there is both financial and moral support for starting up, if not taking over their parents business in the event of the parents' death or retirement. Wang and Wong (2002) and Scott and Twomey (1988) concluded on similar notes. More precisely, Kirkwood (2007) found a broader influence of fathers for male students relative to motherhood effect. Based on the foregoing, we test that:

H2: Student's entrepreneurial interest is influenced by family entrepreneurial history; students with entrepreneurial parents or close relatives showing more interest in entrepreneurship.

3.3 Entrepreneurial Education

It is becoming increasingly obvious that entrepreneurship can be taught. According to Drucker (1985), entrepreneurship, like management and technology, is an age-long practice, whose vital importance to economic growth and development has been explicitly exposed through studies, and brought to the realm of theory and practice. A similar conclusion was arrived at in Australia's National Youth Entrepreneurship Attitude Survey which identifies training and communication initiatives as key sources of positive entrepreneurial influence (Sergeant and Crawford, 2001, p. 3).

Along this school of thought, entrepreneurial education has been recognised as one of the crucial factors that help the youth to understand and cultivate entrepreneurial attitudes (Gorman et. al., 1997; Kourilsky and Walstad, 1998). For instance, in Singapore, Wang and Wong (2004) found that although many Singaporean undergraduates desired to run their own businesses, their dreams were hindered by inadequate preparation. This is because their business knowledge is insufficient, and more importantly, they are not prepared to take the risk to realise their dreams. However, the discussion on this is far from being over. For instance, Fayolle (1997) maintains a subtle position as he contends that entrepreneurial education can open students' mind and extend their knowledge towards creativity, innovation and may equally shape their attitude towards risks.

Despite the ongoing debate, the findings of Wang and Wong (2004) on Singaporean students' entrepreneurial interest give some direction. They found that though students have very high interest in running their own businesses, they are largely constrained by little or no knowledge about business, thus intensive entrepreneurial education for university students with more attention to females is desirable.

On this premise we find it worthwhile to test the hypothesis that:

H3: Entrepreneurial education is positively related to students' entrepreneurial interest.

3.4 Risk Aversion

Based on the presumption that entrepreneurs are risk-seeking individuals whose desire for resource control reinforces their innate drive for risky ventures, students' entrepreneurial interest will be expected to be hinged on their attitude towards risk. Surprisingly, Wang and Wong (2004) found no evidence of correlation between student entrepreneurial interest and attitude towards risk in Singapore; although they also showed that the students were not risk-averse Djankov et al (2005) also concluded that Brazilian entrepreneurs do not exhibit more risk seeking attitude than the non-entrepreneurs, though, successful entrepreneurs were found to be less risk averse relative to the failed ones. The findings in the United States align with the foregoing, as reported by the Global Entrepreneurship Monitor (GEM, 2003). Czuchry and Yasin (2008) also found risk aversion to be a major factor influencing students' business interest in Wales with females being more risk averse. We find it interesting to investigate the peculiarity of Nigeria as follows:

H4: Risk aversion negatively influences entrepreneurial propensity

3.5 Ethnicity

The Global Entrepreneurship Monitor (GEM, 2003) provides an interesting insight into the likely influence of ethnicity on entrepreneurial interest. The report on the United States shows that the African Americans have the highest Total Entrepreneurial Activity relative to the Asian, White and Hispanic Americans. Contrarily, Wang and Wong concluded that ethnicity has little effect on entrepreneurial propensity among Singapore students. The realities in Nigeria, a multi-ethnic country require some verification. In doing this, we subject our a priori expectation to test as follows:

H5: Entrepreneurial interest is independent of ethnicity

3.6 Family Socio-Economic Characteristics

Ramana and Jesper (2008) contend that the social context plays an important role in shaping career aspirations and in legitimating different career choices. Thus, see entrepreneurship could be seen as the outcome of a social influence process. Since the family is the major agent of socialization, it may be apt to presume that successful entrepreneurs are motivated by their family status. Along this line, Stella (2008) concluded that family and community socio-economic background has an important influence in the orientation towards entrepreneurship. This may be viewed from two broad perspectives. While the affluent ones might be motivated by the seeming access to cheap capital for both start-up and expansion as Djankov et al (2008), the less privileged ones may see entrepreneurship as a necessary alternative string of income to complement their parents' income. Within our developing country context, we test that:

H6: Family socio-economic characteristics have significant influence on the entrepreneurial propensity of Nigerian students.

3.7 Academic Performance

The GEM (2003) reported that educational level influences the propensity for entrepreneurship in the United States; and Wang and Wong (2004) presented evidences from Singapore that students with a higher academic performance are more likely to opt for white collar jobs rather than considering self-employment. At the other end of the spectrum, those with lower academic grade may see entrepreneurship as a succour; a necessary alternative, especially in a country like Nigeria where there is stiff competition in the labour market due to the escalating rate of unemployment. Within this context, it is worth testing that:

H7: Academic performance is significantly associated with entrepreneurial intentions.

4.0 Methodology

4.1 Research design, instruments and validation

Using information from relevant literature and several brainstorming sessions, a structured questionnaire was developed for the study. To maximise data quality and to ensure that the questionnaire was not burdensome to respondents, the number of pages in the questionnaire was kept as few as possible. A pilot survey was carried out in a Federal University and a State Polytechnic in the South-Western region of the country. Feedback from the pilot survey indicated that the instrument was largely adequate except for a few minor issues which were rectified in the final survey instrument.

4.2 Data Collection

Data was collected between November 2006 and February 2007 through a systematic survey of 7,560 students from a total of 25 tertiary institutions comprising 13 (20% of all registered) Universities, 9 (18% of all registered) Polytechnics and 3 (38% of all registered) Colleges of Education (Technical). The directory of institutions used was based on the latest examination brochures published by the Joint Admissions and Matriculations Board (JAMB) as at the time of commencement of this study. We selected this source because of its intrinsic reliability since JAMB is the sole authority responsible for admitting students into all categories of institutions covered by this study. It is known that JAMB's institutional listings do not include non-accredited institutions and courses. Response rate was about 83%.

Multi-stage sampling method was adopted in selecting a representative sample for this study. This involved clustering the tertiary institutions into the six geo-political zones in Nigeria, followed by a consideration of their age and ownership type, in that order. The institutions visited (see Map 1) were finally selected based on availability of the courses focused on in this study. Respondents were selected randomly from the final and penultimate years in Science and Engineering, Technology, Economics, Business Administration, Marketing and Agriculture courses.

4.3 Variables and Measurement

4.3.1 Dependent variable

The dependent variable is entrepreneurial interest (EI). This was captured by a binary variable which assumed a value of 1 if the respondent answered “Yes” to the question, “Are you interested in starting your own business?” and 0 otherwise.

4.3.2 Explanatory variables

Nineteen explanatory variables were considered for this study. Gender was measured by a binary variable which had a value of 0 if male and 1 otherwise, and ethnicity was a nominal variable. Entrepreneurial Education had a value of 1 if the respondents had taken any business/entrepreneurship course in the school and 0 if otherwise. Family entrepreneurial history was measured by four binary variables. Two of these indicated whether or not the students’ parents or close relatives had been engaged in business before (1 if Yes and 0 otherwise). The remaining two captured the state of those businesses (1 if ongoing and 0 otherwise). The socio-economic characteristics of the students’ family were measured by proxy variables. These include 8 categorical variables that captured parents’ monthly income, parents’ highest level of education and parents’ present occupation, separately for the father and the mother. Four nominal variables approximated the family characteristics by the number of children by the father and mother separately as well as the respondents’ position among them. The academic characteristics of the students were captured by their CGPA and course of study. Risk aversion was measured by the Likert scale response (ranging from 5, Very high to 1, Very low) to the statement ‘Please rate your level of concern about the risk involved in starting your own business?’. Respondents’ entrepreneurial/business was approximated by a binary variable representing whether or not they are presently engaged in business (1 if Yes and 0 otherwise).

4.4 Method of data analysis

Statistical analysis was carried out using SPSS Version 15.0. Both descriptive and inferential statistics were used in processing the data. The relationships among the variables were assessed first with a bivariate correlation and then a binary logistic regression model. In general, non-significant results have not been reported, except where there was adequate statistical power and the failure to find a relationship is itself of interest.

5.0 Results and Discussions

5.1 Sample Characteristics

Table 1 shows the distribution of the respondents based on their gender and ethnicity. There were more male respondents than female in the sample. Majority of the respondents are of Yoruba origin and students of Igbo origin formed about a third of the sample. Since sampling was random with gender and ethnic origin not being part of the sampling criteria, these distributions apparently reveal two main realities. First, there is a gender imbalance in tertiary student enrolment in Nigeria, particularly in science- and technology-related courses from where most of our sample was drawn. Secondly, an ethnic disparity exists in tertiary enrolment, an obvious implication of the seeming educational backwardness of certain sections of the country particularly in the North and the South-South. In these regions, student enrolment is generally low and the number of available institutions is few⁴.

Insert Table 2 here

5.2 Testing of Hypotheses

The hypotheses stated earlier were tested with a binary logistic regression model. The regression was preceded by correlation tests and a principal component analysis. In all cases, entrepreneurial interest (EI) was taken as the dependent

⁴ For instance, in the North-Eastern part of the country with 6 states and total population of about 19 million there were only duly registered 12 universities, 6 polytechnics and 4 colleges of education as at the end of 2006. In the South-South, only 25 tertiary institutions (19 universities, 4 polytechnics and 2 colleges of education) were available to serve a total population of over 21million in 5 states. On the other hand, 34 universities, 11 polytechnics and 6 colleges of education were in the South-Western part of the country which had a total population of over 27.5 million in 6 states.

variable. Nineteen explanatory variables were included in the correlation analysis, and fifteen of them turned out to relate significantly to EI (Appendix Table 1). Upon initial examination, the data met the assumptions for factor analysis (Bartlett test of sphericity = 2741.76; significance = 0.000; Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.59). The 15 variables were then subjected to principal component analysis to determine groups of variables that would be most useful in explaining EI. The variable Risk Aversion was rejected due to its very low communality (0.182). Five factors were extracted which explained 52.1% of the variance in EI. After applying a varimax rotation which converged in 5 iterations, variables that loaded onto each factor were selected taking 0.5 as the cut-off point for explanatory purposes. The factors have been named with respect to their component variables (Table 3). The 14 independent variables that loaded significantly were included in the regression analyses, the results of which are presented in section 5.4. The next subsection discusses our findings on entrepreneurial interest (EI) and involvement of the students.

Insert Table 3 here

5.2.1 Results on dependent variable

Of the almost 6000 student respondents, 26.94% was engaged in business at the time of this study, about 95% of whom were actually the initiators of their business (Figure 1). In this sense one can distinguish between initiating entrepreneurs who would on their own transform their idea into businesses, and partnering entrepreneurs who would seek co-founders without which they might not actually become business owners. It is worth noting that these two types are greatly conditioned by the level of difficulty of the business in question. About 84% of the respondents indicated interest in entrepreneurship, about 70% of them preferring technology-based entrepreneurship (Figure 2). For the purpose of this study, a technology-based business was defined as one which has at least two of the following characteristics: cannot be done by just anybody because it requires some specialised skills/training; requires substantial knowledge input or requires some machine and specialised equipment. A more detailed analysis revealed a slight ambiguity in the students' preferences, with 1.4% indicating interest in both

technology-based and non-technology-based businesses (Figure 3). While there might be those with unclear preferences, these results imply that most of the students have a preference for technology-based businesses. Ensuring, first and foremost, that this high level of interest is sustained and then that it is actually expressed in business start-ups, should be the target of entrepreneurship-related policies.

Compared with figures from elsewhere, the entrepreneurial interest and involvement among Nigerian students is consistently higher (see Table 4). The high difference between the proportion of students with EI in Nigeria and those who actually practice entrepreneurship raises important policy questions. It would be interesting to know what factors account for this huge difference and what steps need to be taken to close this gap, especially noting that present involvement in business seems to predispose students towards being self-employed after graduation ($r = 0.143$; $p < 0.01$). Equally important is the knowledge of the motivators and inhibitors of entrepreneurial involvement and interest.

Insert Table 4, Figure 1, Figure 2 and Figure 3 here

5.2.2 Results on explanatory variables and entrepreneurial interest

In what follows we discuss first the correlation results and then present the regression results. We follow in section 5.3 with our interpretation of the regression results on the hypotheses. As noted earlier, 15 independent variables correlated significantly with the dependent variable, entrepreneurial interest (EI) but only 14 of them went into the regression model. The variable Risk Aversion had been eliminated by the factor analysis. The detailed correlation results are contained in Appendix Table 1 but a summary on the explanatory variables is presented in Table 5.

Insert Table 5 here

Quite interestingly, CGPA did not emerge in our analysis as a significant correlate of entrepreneurial interest. The negative correlation of EI with gender indicates that

male students are more likely to be entrepreneurial. This partly suggests the presence of a gender imbalance in entrepreneurship among Nigerian students. The positive relationship between ethnic origin and EI points in the direction of the fact that when consideration is limited to only the major ethnic groups, students of Yoruba origin are the most likely to exhibit entrepreneurial interest. This is contrary to the general belief that young Igbo persons are relatively more entrepreneurially minded. Surprisingly, the correlation result suggests that students from technology-based courses are more likely to exhibit greater EI than their counterparts from other fields, including the social sciences. This result is clearly opposed to common reason because, by their very nature, one would expect the social science courses to intrinsically stimulate entrepreneurial interest among the students offering them. It goes without saying, then, that entrepreneurial education initiatives are equally required in all fields of study and preferably at all levels.

Clearly, in a developing economy context, the relationship between family tradition and entrepreneurship has to be seen in relation to a country-specific context, and also related to the extant cultures and state of the business (i.e. whether it is ongoing or discontinued). Parental entrepreneurial history tends to favour students' interest in entrepreneurship, albeit not as strongly as one would have expected. Similar to the trend observed with parents' entrepreneurial history, the entrepreneurial history of close relatives exert significant influence on students' decision to become entrepreneurs but the state of their businesses exert a weaker influence on students' present engagement in business compared to the state of parents' businesses.

Interestingly, the relationship of students' interest in entrepreneurship with the state of close relatives' entrepreneurial history is stronger ($r = 0.102$; $p < 0.01$) than with the state of parents' businesses ($r = 0.065$; $p < 0.01$). This suggests that although the state of parents' businesses also influences the decision of their children to become entrepreneurs, this influence comes more strongly from the state of close relatives' businesses. Another interesting observation is that, while students' interest seems to be significantly influenced by their father's income, no significant relationship was found between mother's income and the entrepreneurial interest of the students.

However, students' entrepreneurial interest and the level of education of both parents are significantly related. The foregoing relationships imply that students' entrepreneurial interest decreases as their parents' income and level of education increase. Apparently, the children of well-educated and relatively rich parents are not as likely to engage in entrepreneurship as the children of poor and uneducated parents. The higher necessity for self-sustenance among this latter group of students might well be a reason for this phenomenon. Regarding parents' demographics, only the number of children by father and position among mother's children significantly influence the decision of a student to become an entrepreneur. This implies that a student who comes from a large family and has many younger siblings tends to have higher interest in entrepreneurship.

There is empirical evidence supporting entrepreneurial education as an intervention tool for impacting adult attitudes towards entrepreneurship. For instance, entrepreneurship education has been found to be an important component of economic strategies for fostering job creation (McMullan et al, 1986). More specifically, effective youth entrepreneurship education prepares young people to be responsible, enterprising individuals who become entrepreneurs or entrepreneurial thinkers and contribute to economic development and sustainable communities (Consortium for Entrepreneurship Education, 2002). In addition, entrepreneurship education programmes assist individuals create value through the recognition of business opportunity, exercise of communication and management skills and development of personal competencies necessary to mobilise the resources that will bring the opportunity into reality. It is therefore not surprising that our study found a significant relationship ($r = 0.163$; $p < 0.01$) between students' exposure to entrepreneurial education and their interest in starting their own business. A Mann-Whitney test showed that a significant difference ($U = 3146059$, $p < 0.01$) exists in the entrepreneurial interest of the students who had been exposed to entrepreneurial studies and those who had not been exposed to such studies. It therefore follows that it would be highly beneficial for all tertiary institutions to introduce entrepreneurial courses in their curricula.

5.4 Discussion of Hypotheses

The results of the 2-step binary logistic regression analyses are contained in Table 6. In the second step, we sought to check the effects of the interactions observed in Appendix Table 1 on the model. As can be seen, interactions effects are low and insignificant; and they bring about almost no change in the explanatory power of the model. Altogether, five significant variables were identified and the model explains 6.4% of variation in EI. This is comparable with the results of similar previous studies (Wang and Wong, 2004). Using the foregoing result, we discuss our hypotheses in the following sub-sections.

Insert Table 6 here

5.4.1. Gender

Based on the analysis, H1 on gender is accepted. The gender factor is actually the most significant of the nine background factors; the negative B value indicating higher male propensity. The result of the analysis confirms previous literature which suggests that male students have stronger entrepreneurship aspirations than females. (De Wit and Van Winden, 1989; Lerner and Yeoshua, 1996; Kourilsky and Walstad, 1998). In terms of sustainability of interest, it has also been found out that there is high tendency that males sustain their entrepreneurial interests much longer than their female counterparts (Matthews and Moser, 1996).

5.4.2 Family entrepreneurial history

Interestingly, based on the result of our analysis, we found out that parents' entrepreneurial history makes an insignificant contribution to the model. In view of this, H2 on family entrepreneurial history is rejected. This result contends with the extant literature which reached conclusions that family entrepreneurial history has significant influence on EI of their children (Stella, 2008; Czuchry and Yasin, 2008; Davidson, 1995; Sweden and Stanworth et al, 1989 and Verheul et al, 2006). Following from our result, it is not surprising at all to also discover that variables such as the state of parents' business, close relatives' entrepreneurial history and state of close relatives' business do not significantly affect EI of the undergraduate students. The implication of this is that although family business background exposes

respondents to a business environment early in life, it does not necessarily stimulate their interests in wanting to start a business. Moreover, this deviation from the norm could also be explained by the fact that children's experience or participation in family business may not be considered as a goal in itself but as a means to guarantee prestige and safety for the family.

5.4.3 Entrepreneurial education

The result of the regression analysis shows that specialized education directed towards entrepreneurship has a significant influence in motivating students to want to become entrepreneurs thus, H3 is accepted. Education has been identified as an important factor that could stimulate culture of entrepreneurship (Gorman et. al., 1997; Kourilsky and Walstad, 1998). This factor is the next most significant after gender in the nine background factors used as explanatory variables. In the light of several efforts of the Federal Government of Nigeria in inculcating entrepreneurship education into undergraduate students, one can say that this is a good result. This is because, it is believed that effective youth entrepreneurship education would prepare young people to be enterprising and eventually contribute to economic development of the community (Consortium for Entrepreneurship Education, 2002).

5.4.4 Risk aversion

Even though scholars have not reached a consensus, risk taking has always been a factor in the entrepreneurship literature. For instance one would assume that those with high EI would be less risk averse than those with less EI (Mill, 1984; Cunningham et al., 1995). The factor analysis dropped our risk aversion variable because it makes little contribution to the model but we do not assume that there is no difference between those with high EI and low EI in terms of risk aversion. A Kruskal-Wallis test actually showed a significant difference in attitude towards risk among the two categories. This result contends with some literature where risk aversion was not identified as critical in entrepreneurship propensity of young people (Wang and Wong, 2004 and Djankov et al, 2008).

5.4.5 Ethnicity

There are different views on the effect of ethnicity on entrepreneurship among the youth in the entrepreneurship literature. In a country with such diverse composition as Nigeria, the influence of ethnicity on entrepreneurial drive may be of interest to policy makers. It is useful to know, for instance, whether or not there are differences in students' entrepreneurial behaviour on ethnic basis. It is with this context that we checked this variable against students' propensity for entrepreneurship. The result of the regression analysis showed that ethnicity did not exact any significant influence on the entrepreneurial propensity of the students. Based on the foregoing, we accept H5. This result is interesting within the context of the socio-political landscape of Nigeria because it is usually believed that youths of Igbo origin are more disposed towards entrepreneurship than the other ethnic groups. We propose an in-depth exploration of this relationship to see if there is indeed no effect between the two factors.

5.4.6 Family socio-economic background

Several variables are put together under the family socio-economic background. These variables include: number of children by father, position among mother's children, father's educational qualification, mother's educational qualification and father's monthly income. Out of these variables, only the number of children by father, position among mother's children and father's monthly income significantly influence the EI of students; we thus partly accept H6. This result is a bit different from that of Wang and Wong (2004) who found that income level and entrepreneurial interest are not related. They also noted that financial ability of the respondent's family is not related to his or her business interest. The result of our study implies that EI of students could be influenced by their social status in the family and the financial support they get from their family.

5.4.7 Academic performance

There are mixed opinions on the effects of academic performance. For instance, in the analysis of self-employment rate and school performance, Dolton and Makepeace (1990) found out that the two factors are not related. Our correlation results did not indicate that academic performance is a significant determinant of

students' entrepreneurial propensity. It goes without saying, then, that students would choose or reject entrepreneurship as a career option irrespective of their level of performance in school.

6.0 Conclusions, policy implications and suggestions for further study

The goal of this paper has been to conduct empirical survey on the determinants of entrepreneurial propensity among undergraduate students in Nigeria, with special attention to their entrepreneurial interest. The first step towards motivating students' interest in entrepreneurship is to identify, quantify and understand prominent factors.

Based on an examination of 20 variables, we identified fourteen main variables that could determine propensity of students to want to establish their own businesses. These variables were further grouped into four main factors which are important estimators of students' entrepreneurial interests. These factors include: parents' educational qualifications, family entrepreneurial history, family socio-demographics, students' entrepreneurial experience, and students' socio-demographics. It is therefore clear that more than one combination of variables can motivate students. Of the fourteen variables identified as being central in encouraging students' entrepreneurial interests, only five can be defined as necessary, though but not sufficient, conditions to stimulate interest: gender, number of children by father, position among mother's children, father's monthly income and entrepreneurial education.

From these, a number of useful conclusions can be arrived at. It is important to note, first, that entrepreneurial interest among Nigerian students is quite high but the expression of this interest in practice is rather low. Analysis reveals that female undergraduate students are less interested in entrepreneurship when compared with their male counterparts. We also discover that certain family socio-economic characteristics, business history and income significantly stimulate entrepreneurial interest of the students. Entrepreneurial education plays a significant role to entrepreneurship as students who had taken entrepreneurship course are more likely to be interested in start-ups.

These conclusions provide several policy implications for university educators, administrators and policy markers. For instance, individual entrepreneurial determining factors such as culture, norms, traits and values are difficult to change, but since the level of entrepreneurial interest is very high among the students. A slow but realistic way to change this is to expose students to independence and practical exploration in entrepreneurship at an early age while still in school. Various activities can be used to promote entrepreneurial thinking. Universities can start offering courses in entrepreneurship courses at all levels. These courses will facilitate and sustain entrepreneurial interest of students in gaining the skills they need to start their own businesses. The fear of risk about start-ups among the students can be allayed by using career counsellors to discuss the merits of entrepreneurship as a career option to graduating students. Another way of stimulating students' entrepreneurial interest is by identifying and promoting successful entrepreneurs as role models for nascent entrepreneurs to emulate. This can be done over the radio, television and in the newspapers. Using these medium will increase the level of entrepreneurial interest of students and make them see entrepreneurship as an opportunity to be financially independent.

This study throws light on several issues on entrepreneurship that can be explored further. The level of risk aversion among the students was not examined further in the analysis because it was dropped by the result of the factor analysis. Considering the fact that risk taking is recognized as a trait of a successful entrepreneur, it will be interesting to find out in detail perception of risk among the undergraduate students in Nigeria. Another area of research that could be investigated is that of gender. Research can be carried out to find out if the same factors affect propensity of both sexes to go into entrepreneurship. One could also examine the level of interest of students in technological entrepreneurship and the factors that motivate or discourage them to want to engage in this kind of business. Another area of further research is to conduct this study on entrepreneurial interest and engagement of graduate students in Nigeria.

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Table 1: Highlights of Previous Research in Student Entrepreneurship

Studies	Country Context	Period focused	% entrepreneurial interest
Scott and Twomey (1988)	US	Early 80s	24.6%
Timmons (1994)			90%
Kourilsky & Walstad (1998)		90s	66.9%
Walstad & Kourilsky (1999)			69%
Scott & Twomey (1988)	UK Ireland	80s	40.7% 34.3%
Sergeant & Crawford (2001)	Australia	00s	68.2%
Wang & Wong (2004)	Singapore		50.7%
Doh et al(1996)	Singapore	90s	61.8%

Table 2: Demographic and academic characteristics of the respondents

Gender	Percentage (n = 6146)
Male	64.4
Female	35.6
Ethnic Origin*	Percentage (n = 5869)
Yoruba	36.5
Igbo	32.0
Others	23.1
Hausa	8.5
Field of Study	Percentage (n =6236)
Engineering/Technology	52.3
Pure sciences	17.6
Agriculture	11.8
Social sciences	2.3
Management sciences	15.9

*The respondents were grouped into the three main ethnic groups in the country (i.e. Hausa, Igbo and Yoruba). All other ethnic groups were put together in a single category referred to as "Others".

Table 3: Factors related to entrepreneurial interest of Nigerian students

Factor 1 (Parents' Qualifications)	Factor 2 (Family Entrepreneurial History)	Factor 3 (Family Demographics)	Factor 4 (Students' Entrepreneurial Experience)	Factor 5 (Students' Demographics)
Father's educational qualification (0.876)	State of close relatives' business (0.721)	Position among mother's children (0.85)	Entrepreneurial education (0.733)	Course of study (0.657)
Mother's educational qualification (0.874)	Close relatives' entrepreneurial history (0.689)	Number of father's children (0.839)	Present involvement in business (0.712)	Gender (0.652)
Father's monthly income (0.656)	State of parents' business (0.636) Parents' entrepreneurial history (0.563)			Ethnicity (-0.586)

Table 4: Comparison of youth entrepreneurial patterns in selected countries

Country	Students' Business Engagement (%)	Students' Entrepreneurial Interest (%)
Nigeria	27	85
Australia	10.3*	68.2*
United States	-	65 [#]
Singapore		50.7 [†]

*Sergeant and Crawford, 2001; [#]Kourilsky and Walstad, 1999; [†]Wang and Wong, 2004

Table 5: Factors influencing students' entrepreneurial interest

Variables	EI
Gender	-0.135**
Ethnic origin	0.095**
Faculty/school	-0.040**
Present CGPA	-0.062
Number of children by father	0.043**
Number of children by mother	0.024
Position among father's children	-0.022
Position among mother's children	-0.041**
Father's highest level of education	-0.088**
Mother's highest level of education	-0.083**
Father's range of monthly income	-0.059**
Mother's range of monthly income	-0.014
Parents' entrepreneurial history	0.193**
State of parents' business	0.065**
Close relatives' entrepreneurial history	0.195**
State of close relatives' business	0.102**
Entrepreneurial Education	0.163**
Present engagement in business	0.143**
Risk Aversion	0.076**

** Correlation is significant at the 0.01 level 2-tailed.

Table 6: Results of 2-Stage Binary Logistic Regression on EI: Other Variables

	B	Wald	Exp(B)
Gender	-0.647***	24.558	0.523
Ethnicity	-0.008	0.013	0.992
Course of Study	-0.035	0.164	0.965
Number of children by father	0.084*	6.160	1.087
Position among mother's children	-0.108**	7.235	0.897
Father's educational qualification	-0.058	2.899	0.944
Mother's educational qualification	-0.037	1.172	0.964
Father's monthly income	0.060*	4.744	1.062
Present engagement in business	0.138	0.874	1.147
Entrepreneurial education	0.383**	7.895	1.467
Parents' entrepreneurial history	-0.389	0.775	0.678
State of parents' business	-0.058	0.129	0.943
Close relatives' entrepreneurial history	0.133	0.139	1.142
State of close relatives' business	-0.026	0.016	0.975
Constant	2.838**	7.768	17.076
Step 1 R ² change	69.876***		
Interactions			
Father's level of education*Mother's level of education	0.008	0.615	1.008
Step 2 R ² change	0.614		
Overall Nagelkerke R ²	0.064***		
Overall Hosmer and Lemeshow Test	$\chi^2 = 10.584$		

Note: The dependent variable is the Entrepreneurial Interest of the respondents;

N = 1848; * p<0.05; **p<0.01; ***p<0.001

Appendix Table 1: Correlation Matrix of Independent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2	-0.135**																			
3	0.095**	-0.115**																		
4	-0.040**	0.138**	-0.057**																	
5	0.043**	-0.027*	0.023	0.039**																
6	0.024	0.003	-0.018	0.048**	0.768**															
7	-0.022	0.019	-0.009	0.029*	0.574**	0.496**														
8	-0.041**	0.023	-0.020	0.032*	0.459**	0.547**	0.880**													
9	-0.088**	0.055**	0.043**	-0.040**	-0.246**	-0.190**	-0.131**	-0.100**												
10	-0.083**	0.074**	-0.009	-0.018	-0.292**	-0.224**	-0.153**	-0.120**	0.757**											
11	-0.059**	0.062**	-0.025	-0.007	-0.150**	-0.116**	-0.049**	-0.031*	0.478**	0.461**										
12	-0.014	0.053**	-0.032*	0.016	-0.128**	-0.084**	-0.037*	-0.0017	0.351**	0.429**	0.695**									
13	0.193**	-0.062**	0.147**	-0.027*	0.037**	0.017	-0.002	-0.0016	-0.029*	-0.031*	0.027	0.048**								
14	0.065**	0.017	0.002	-0.019	-0.074**	-0.066**	-0.052**	-0.039*	0.091**	0.076**	0.120**	0.107**	0.278**							
15	0.195**	-0.048**	0.086**	-0.022	0.034*	0.025	0.019	0.006	0.008	0.014	0.026	0.059**	0.484**	0.123**						
16	0.102**	0.003	0.010	-0.009	-0.035*	-0.043**	-0.022	-0.0025	0.064**	0.060**	0.074**	0.077**	0.168**	0.263**	0.335**					
17	0.143**	-0.065**	0.018	0.015	0.0015	0.002	0.033*	0.031*	0.028*	0.033*	0.085**	0.095**	0.205**	0.138**	0.213**	0.063**				
18	0.163**	-0.075**	0.085**	0.014	-0.004	-0.017	0.008	0.001	0.014	0.019	0.060**	0.078**	0.240**	0.074**	0.244**	0.039*	0.265**			
19	-0.062	0.026	-0.023	0.012	-0.054**	-0.046**	0.000	0.011	0.118**	0.134**	0.108**	0.103**	0.043**	0.017	0.053**	0.026	-0.028	-0.029		
20	0.076**	-0.062**	0.020	-0.012	-0.008	-0.010	-0.010	-0.003	0.031**	0.031**	0.058**	0.041**	0.024	0.004	0.044*	-0.007	0.080**	0.093**	0.036	

* Correlation is significant at the 0.05 level 2-tailed

** Correlation is significant at the 0.01 level 2-tailed

1 = EI; 2 = Gender; 3 = Ethnicity; 4 = Course of Study; 5 = Number of father's children; 6 = Number of mother's children; 7 = Position among father's children; 8 = Position among mother's children; 9 = Father's educational qualification; 10 = Mother's educational qualification; 11 = Father's monthly income; 12 = Mother's monthly income; 13 = Parents' entrepreneurial history; 14 = State of parents' business; 15 = Close relatives' entrepreneurial history; 16 = State of close relatives' business; 17 = Present engagement in business; 18 = Entrepreneurial education; 19 = Present CGPA; 20 = Risk Aversion

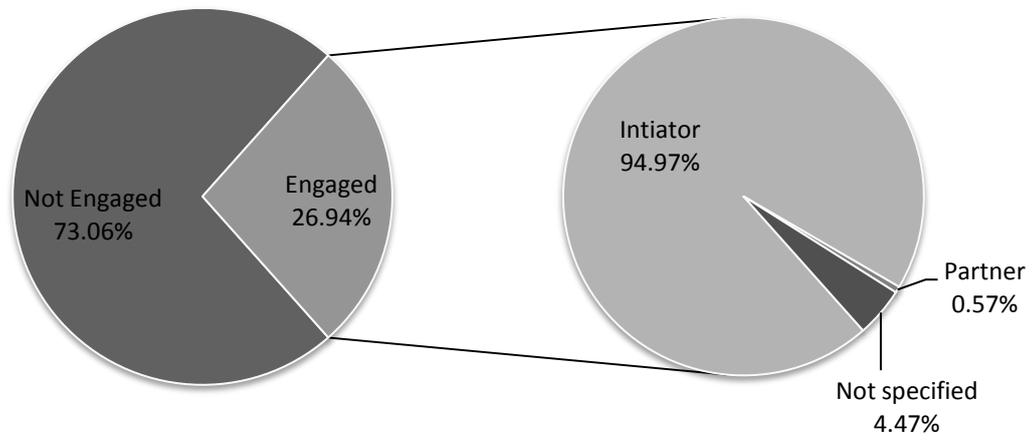


Figure 1: Distribution of students' engagement in business (n = 5898)

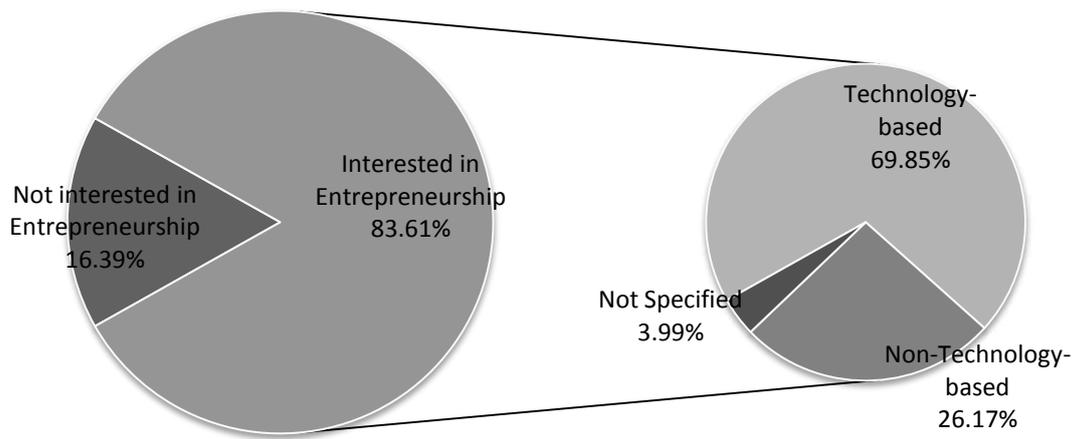


Figure 2: Distribution of students' entrepreneurial interest (n = 5791)

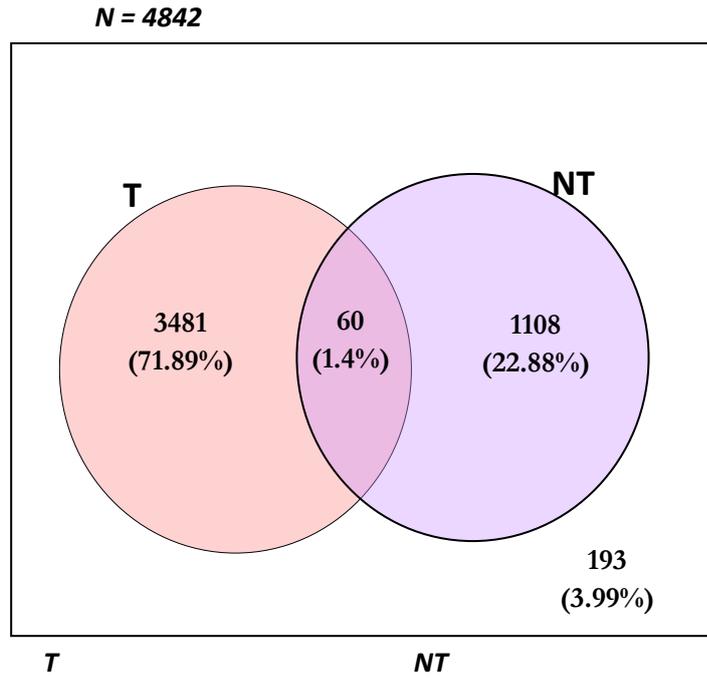


Figure 3: Specific Classification of Students' Preferred Business Type

Appendix Map 1: Distribution of the sampled institutions

