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**EDUCATION DEMAND IN TERTIARY INSTITUTIONS: AN EMPIRICAL
ASSESSMENT OF INTERNATIONAL STUDENTS' DEMAND IN GHANA.**

A DISSERTATION SUBMITTED TO

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

MASTER OF SCIENCE IN ECONOMICS

By

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DECLARATION

I hereby declare that this dissertation is my own work towards the award of a Master of Science in Economics and that, to the best of my knowledge it contains no material previously published by another person nor material which has been accepted for the award of any other degree in this university or elsewhere, except where due acknowledgement has been made in the text.

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I declare that, I have supervised the above student in undertaking the study herein submitted and confirm that, he has my permission to submit it for assessment.

Grace Ofori-Abebrese, Ph.D

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Signature

Date



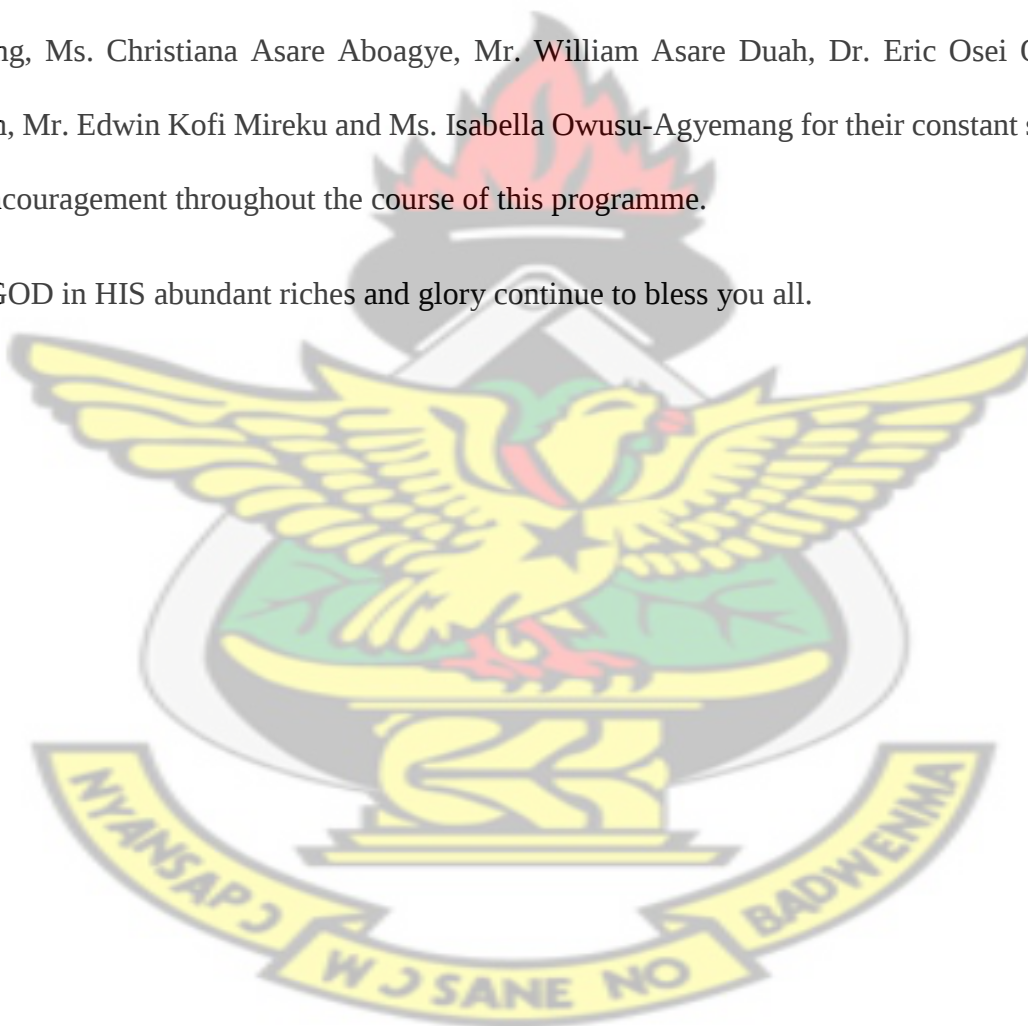
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Bless the LORD, O my soul; and all that is within me, bless His holy name! For it is HE who has made me and not me myself.

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May GOD in HIS abundant riches and glory continue to bless you all.



ABSTRACT

International students have proven to be essential for the progress observed in the major tertiary institutions of the world and acknowledged to have aided countries within which these institutions are situated to generate billions in export revenue. Owing to their significant contributions, majority of institutions and countries desiring to take advantage of their knowledge economy have been compelled to prioritize and explore issues in their education sector particularly those relating to the factors necessitating inbound mobility of students into their institutions/country. In Ghana however, attention has often been focused on explaining outbound mobility of students. This paper therefore diverted its focus by examining the responsiveness of international demand for tertiary education in Ghana, with respect to institutional and macroeconomic variables that have influenced demand in other countries. The logistic regression applied on the institutional and macroeconomic variables of interest established that, the influence of macroeconomic variables on international student's education demand decisions outweighs that of institutional variables in Ghana. The study further found programme offered, institutional reputation and advertisement as significant institutional variables; and security and immigration procedures as the significant macroeconomic variables influencing international student's demand for tertiary education in the country. Based on the findings, creation of immigration desks/offices in institutions, a review and restructure of programmes and courses towards computer-oriented, engineering and business related programmes and courses, and an adequate motivation for the immigration service and other security agencies in the country is recommended.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The significance of international trade to economic growth and development has incessantly been acknowledged and explained in many development economics writings. According to Todaro and Smith (2014), international trade is the “engine of growth that propelled the development of today’s economically advanced nations” during their earlier stages. Based on this, specialization in terms of natural abilities and resource endowment has been advocated by traditional trade theories which has left emerging and developing economies as primary commodities exporters and importers of intermediate/consumer commodities and services. This in line with the Prebisch-Singer hypothesis, has left such economies in unpleasant balance of payment positions as commodity terms of trade continues to deteriorate.

Consequently, attention has been devoted in contemporary times to service trading facilitated by international trade agreement in services. The role of services, particularly education as a significant service sector and revenue generator has received increased recognition (Nhan, 2018) and deemed as an urgent necessity (Mestenhauser, 2005 cited by Hayle, 2008) by development stakeholders. This augmented by education’s crucial influence on innovation and human capital development (Dill & Vught, 2010), prosperity (OECD, 2012), and poverty alleviation has triggered persistent increase in demand and supply of education. This is manifested in the notable growth in student enrollment augmented with simultaneous expansions in educational infrastructure across the globe.

Education therefore has undergone profound transformations in scope and diversity (OECD, 2008; Altbach et al., 2009) especially in economies that have sought to attract prospective students ready to pursue education at any cost (Altbach & Knight, 2007; Alam et al., 2013;

Youssef, 2014; Chen, 2015; Ziguras & McBurnie, 2015). As suggested by Bashir (2007), education has gradually evolved into a tradable service like telecommunication or financial services. A research conducted by the British Council in collaboration with Universities UK and IDF Education Australia (Böhm et al 2004, cited by Asteris 2006) provide credence to Bashir (2007)'s suggestion and predicts a growth in education trade with a rise in global flows of students from 2.1 million in 2003 to approximately 5.8 million by 2020 (Li et al., 2010).

Certainly, this poses great economic gains, and in countries where these flows are desired, institutions have been modeled to attract students by offering demand driven programmes at demand sensitive fees (Conlon et al., 2017); diverse range of programmes, convenient study schedules, module-based curricula and credit systems, competence-oriented and student-centered organization of studies (Schuetze & Slowey, 2002; Vught, 2008).

In Ghana, similar improvement and transformation in education has been experienced. Notable amongst this is the continual increase in the number of tertiary institutions in response to the significant increase in domestic demand and the gradual attraction of international students. In 2015, Ghana was reported to have attracted about 10, 383 foreign students to pursue various programmes in her tertiary institutions (myjoyonline.com). Current information however indicates that, tertiary institutions in the country host a total of 15, 999 foreign students representing a 3.8 inbound mobility ratio (uis.unesco.org).

Despite these, the emergence of increased competition and globalization in the education sector (Jowi, 2012; Phang, 2013) as well as the selectivity and greater expectations exhibited by contemporary international students (Bohm et al, 2004) necessitates that, countries and institutions desiring to be relevant in the trade of education explore and prioritize related issues in education, especially the contributive factors that necessitate the inbound mobility of students.

1.2 Problem Statement

International students have proven to be essential for the progress observed in the major tertiary institutions of the world and have aided countries within which these institutions are situated to generate billions in export revenue. UK's higher education sector for instance in the 2014/15 academic year enrolled over 232, 000 first year international students accounting for approximately 10% of all international-mobile students and estimated to have generated over £10 billion of export revenue (Conlon et al., 2017).

Similarly, the Australian Bureau of Statistics (ABS) estimates that, international students contributed close to \$31 billion to the Australian economy in 2017. The Bureau further indicates that, international education activity arising from international students studying and living in Australia contributed \$28 billion to the economy in 2016/17 which represented a 16.1% increase from the earnings recorded in the 2015/16 financial year (Australian Government, 2017). Higher education has thus become the fourth largest export commodity surpassing Australia's tourism sector in export revenue generation (Australian Government, 2015).

In the United States, international students representing only 5% of the overall college enrollment are also reported to have contributed nearly \$37 billion and created or supported over 450, 000 jobs in the US economy during the 2016/17 academic year (NAFSA). Recent information from Research and Insight suggests Malaysia also hosted 35,592 international students in 2016 and 60,244 in 2017. Malaysia is estimated to generate approximately RM5.9 billion annually from the export of education (New Straits Times). Asari et al (2017), also suggest that, \$1 billion was generated from international tuition fees in a single academic year; with each international student estimated to spend \$9,500 annually in Malaysia (Zainor, 2011).

Based on these contributions, majority of institutions and countries seeking to develop their education industry, have prioritized and explored issues in the sector particularly those relating to the factors necessitating inbound and outbound mobility of students (Asari et al, 2017). Since universities in Ghana have over the years enrolled international students. It is apt that a study be conducted to assess the factors that necessitate the inbound mobility of students into the country.

Akwensivie et al (2013), examining how overall perception and attitude of foreign students influenced behavior intentions in Ghana, focused on institutional and country experience. Frimpong (2015), examining the motivating factors that informed foreign students' decision to study in Ghana with the University of Ghana as the target population, focused on recommendation, migration experience and perception of cost. Nyarko and Ephraim (2016) also reviewing the issues of students' mobility in international education in Ghana with the University of Mines and Technology as the target population, focused on recruitment and marketing effort, infrastructure, immigration procedures, fees and proximity.

This paper therefore diverts its focus by examining the responsiveness of international demand for tertiary education in Ghana, with respect to selected institutional and macroeconomic variables that have influenced demand in other countries considering that, education in Africa continues to be challenged by changing students expectations and preference; growing disconnect between supply and demand, insufficient sustainable financing and insufficient mass of quality faculty (Alabi & Mba, 2012); frequent academic disruptions (ACE Report, 2016 cited in Mba, 2017) and inadequate regional specialization (Mba, 2017). perspective

1.3 Objectives of the study

The study broadly sought to examine the salient variables influencing international students' demand for tertiary education in Ghana. Specifically, the study sort to;

1. Examine the general characteristics of international students in Ghana.
2. Examine the institutional factors that influence international demand for university education in Ghana.
3. Examine if some macroeconomic factors influence international demand for university education in Ghana.

1.4 Research Questions

1. Do institutional factors influence international students' demand for Ghana's universities?
2. Do macroeconomic factors influence international students' demand for Ghana's universities?

1.5 Hypothesis

The study made the following hypothesis;

1. H_0 : Institutional factors do not influence international students' demand for Ghana's universities
 H_1 : Institutional factors influence international students' demand for Ghana's universities.
2. H_0 : Macroeconomic factors do not influence international students' demand for Ghana's universities.
 H_1 : Macroeconomic factors influence international students' demand for Ghana's universities.

1.6 Significance of the Study

Though enormous empirical studies have been undertaken to explain mobility of students from developing nations to institutions in the developed ones and to explain indigenous demand for tertiary education, very little has been undertaken to explain why students from developing, emerging and even developed countries choose to study in a developing country. The study thus intends to offer explanations for this flow of students focusing on institutional and macroeconomic variables as majority of similar studies have centered on marketing perspective of institutions (Mazzarol & Soutar, 2002; Van hoof & Verbeeten, 2005), immigration procedures, proximity, socio-cultural similarities, tuition and infrastructural capacity (Nyarko & Ephraim, 2016).

Also, given the contribution of international students to export revenue generation and aggregate demand in developed economies such as US, UK and Australia, this study intends to help developing countries, specifically Ghana to identify how tertiary institutions can be transformed to generate adequate export revenue for national development.

The study further intends to aid reconcile the mass demand by Ghanaians for foreign education, which is often attributed to the lack of fully developed education sector with requisite infrastructure, demand driven programmes, experienced and well-trained faculty in the country with the relative demand by international students for education in the country attributed to better environment and quality of teaching in the country compared to other Africa countries (Business & Financial Times cited from myjoyonline.com). This is expected to help inform policy decisions in relation to this occurrence.

Additionally, the study intends to help institutions particularly un-subsided institutions identify ways to expand its international student base in order to raise adequate revenue for effective operations given the stern competition they often face for local students from the subsidized institutions.

1.7 Scope of the Study

The study focused primarily on international students from developing countries studying in Ghanaian universities and university colleges. Among the numerous universities and university colleges in Ghana, the study drew samples only from Ghana Technology University College.

The study also relied primarily on fees charged, programmes offered, institutional reputation, teaching and learning facilities, nature of student support services, location and advertisement as institutional variables of interest. Security, purchasing power parity, public expenditure on education, population and immigration processes were there macroeconomic variables of interest.

1.8 Organization of the Study

The study is organized into five chapters, chapter one contains the background to the study, problem statement, objectives, significance, scope and organization of the study. The second chapter contain a review of relevant literature with respect to the study, the third chapter is designated for method of study, the fourth chapter presents data analysis and discussions. The final chapter contain the major findings, conclusions and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section presents a review of both theoretical and empirical literature relevant to the study. Areas reviewed for the purposes of the study include theories motivating international demand for education, overview of tertiary education in Ghana, transformations in tertiary education in Ghana, trends of internationalization and international students' enrollment in Ghana, and empirical factors influencing transnational mobility of students.

2.1 Theoretical Review

2.1.1 Heckscher-Ohlin's Theory

The Heckscher-Ohlin theory states that capital-abundant countries export capital-intensive good and labor-intensive countries export labor-intensive goods (Suranovic, 2006). Countries thus exports goods which it produces relatively better than the other country (Suranovic, 2006). This theory assumes away the inherent differences in relative factor productivity of the classical theories by postulating that, countries possess equal technological possibilities for all commodities and as such if domestic factor prices were the same, countries would use identical methods of production and thus would face the same relative domestic product price ratios and factor productivities (Todaro & Smith, 2014). The theory thus projects that, the basis of trade between countries is not inherent differences in technology or factor productivity for different commodities but rather, inherent differences in endowment of factors of production (Todaro & Smith, 2014).

Based on this theory, trade for tertiary education as manifested in international demand can be attributed to relative factor endowment in education between countries. By this destination

countries and institutions could be assumed to possess relative endowment in education production than originating countries. Thus, institutions in destination countries could be assumed to be relatively endowed in institutional and macroeconomic factors in educational production than originating countries and thus motivating the rise in international demand for education.

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2.1.2 Human Capital Theory by Schultz (1960 and 1963)

Schultz's theory of human capital essentially projected the idea that, investments through education and training in human resources increases productivity of those resources and given that such investments involves costs, investment analysis needs to be applied to determine whether the future benefits or returns from such investments outweighs the cost to be incurred (<http://prizeineconomics.blogspot.com>; Kwakwa et al, 2012). According to Schultz (1960) human capital consists of the accumulation of all prior investments in education, on-the-job training, health, migration, and other factors that increase individual productivity and, therefore, earnings. He further suggests that people invest in knowledge and skills which has economic value or contribute to welfare (www.cengage.com). Base on this theory, international students can be assumed to be rational investing only in education that increases productivity and for which future benefits or returns will outweigh cost.

2.1.3 Human Capital Theory by Mincer (1958 and 1974)

Mincers theory of human capital essentially explained the personal distribution of income resulting from a deliberate investment in human capital (Holden & Biddle, 2016). Mincer (1958) projects that job training or labour market experience influences differences in earnings across individuals and determines inequality and skewness in earnings ([Chiswick, 2003](#); Kwakwa et al, 2012). The extended version of 1974 also projects the effect of human capital on inequality and skewness of earnings. It further suggests that full-time investment in human capital primarily acquired in schools precedes part-time investments generally acquired on the job ([Chiswick, 2003](#)). Based on this theory, international students can be assumed to be rational seeking to influence their earnings.

2.1.4 Human Capital Theory by Becker (1975)

Becker's human capital theory explains both individuals' decision to invest in education and training, and the pattern of individuals lifetime earnings (<https://aspe.hhs.gov>). The theory holds that, since investment in human capital entails cost in both direct expenses and forgone earning during the investment period, people would only invest when they will be compensated sufficiently with a higher lifetime earnings (Berker, 1975 cited from Kwakwa et al, 2012; <https://aspe.hhs.gov>). The theory further suggests that younger people would tend to invest in education and training than older people because pattern of individual earnings starts low and increases with age (Berker, 1975 cited from <https://aspe.hhs.gov>). Based on this theory, international students can be assumed to be rational seeking to influence their lifetime earnings.

2.1.5 Rate of Return Theory by Choi (1998)

The rate of return theory as highlighted by Choi (1998) is the most extensively used theory in explaining demand for education (Asari et al, 2017). This theory simply postulates that people will bear the cost of education if the present value of benefits outweighs its present cost. Studies such as Bouwel & Veugelers (2013), Yang & Wang (2016) and Ouedraogo et al (2017) and Asari et al (2017) all employed similar theory in their work. Based on this theory, international students can be assumed to invest only in education for which present value of benefits outweighs its costs.

2.1.6 Push-Pull Model by Mazzarol and Soutar (2002)

Another theory used to offer explanations for international demand for education is the push-pull model by Mazzarol & Soutar (2002). This model offers explanations for transnational mobility of students by focusing on economic and social push-pull forces existing within destination and originating countries. The model suggests that, certain economic and social forces pertaining in originating countries tend to push students to seek education from abroad whilst existing economic and social forces in destination countries tend to pull/attract students.

2.1.7 Social Capital or Network Theory

Social capital theory emphasis characteristics such as social norms, rules and social trust (Putnam & Feildstein, 2003) and/or resources embedded in individual relationships/networks (Lin, 2001; Stanton-Salazar, 2003). It thus provides an exclusive framework for analyzing and understanding how and why multiple kinds of capital accumulate through network/relationship development (Liou & Chang, 2008).

In explaining mobility of international students, the theory relies on “sets of interpersonal ties that connect migrants, former migrants, and non-migrants in origin and destination areas through ties of kinship, friendship, and shared community origin” (Tanyildiz, 2008). Based on

this theory, social network in relation to experiences from parents, peers, faculty, educational consultants, information sessions among others can be assumed to influence international demand for education.

2.1.8 Golpek (2012)

Golpek (2012) also hypothesize education as an investment into an individual's future and since investment decisions depends on the possible future returns of the investment, the cost of investment and the current interest rates, education with investment purposes is also influenced by these three factors. He further suggests that; education is rationally demanded by individuals on the expectation that they will gain maximized profit. Based on this, international students can be assumed to be rational investing only in education that offers high profits.

2.2 Overview of Tertiary Education in Ghana

Tertiary education in Ghana refers to all post-secondary education, including both public and private universities, colleges, technical training institutes, vocational schools and other institutions of tertiary nature. Management, supervision and delivery of this sector of education in the country falls under the joint coordination of the Ministry of Education (MoE), the National Council for Tertiary Education (NCTE), the National Accreditation Board (NAB), the National Board for Professional and Technical Examinations (NAPTEX), the Ghana Academy of Arts and Sciences (GAAS) geared towards improving equitable access, quality, management efficiency, strengthening links between tertiary education and industry and promoting science and technical education (MoE Report, 2015). Other agencies of tertiary education in Ghana includes the National Service Scheme (NSS) and the Student Loan Trust Fund (SLTF).

Recent information from the National Accreditation Board (NAB), a regulatory body of tertiary institutions in Ghana reveals the existence of over 200 tertiary institutions consisting of 10 public universities, 6 technical universities, 4 chartered private institutions, 81 private tertiary

institutions, 7 tutorial colleges, 5 polytechnics, 37 nursing training colleges, 46 colleges of education and 7 professional institutions with accreditation in Ghana.

Tertiary education enrollment for all programmes in the country has improved marginally from the 2015 figure of 417,534 to 422, 122 in 2016. Gross outbound enrollment ratio for tertiary education remains at 0.5% with a decline in inbound mobility rate from 4.3% in 2015 to 3.8% in 2016. Consequently, net flow of internationally mobile students (inbound-outbound) for both sexes has declined to 0.9% in 2016 from its 2015 rate of 1.4% (dataworld.worldbank.org).

A 2013 report from NAB indicates that, students in the public universities constituted 58.57% of all students in the country, with private universities students constituted 16.9% followed by 13.2%, 9.85% and 1.56% for polytechnics, colleges of education and nursing training colleges respectively.

Admission to tertiary institutions is highly competitive, especially in fields such as medicine, engineering, law, business and pharmacy. The quality of education is considered reasonably high, evidence that human resources are more significant than material resources (gh.usembassy.gov).

2.3 Transformations in Tertiary Education in Ghana

Over the years, tertiary education in the country has undergone significant transformations. Notable amongst these transformations is persistent improvement in access facilitated by infrastructural expansions of public institutions and the continues increase in the number of private tertiary institutions in the country (MoE Report, 2015), new mode of delivery and new constituencies of students (Leach et al, 2008) and consequently resulted in persistent increases in enrollment (Effah et al, 2009). Gross enrollment was estimated at 11.35% in 2012 but rose to 14.23% in 2015 above the Sub-Sahara Africa average of 8.3% (Newman, 2016; Addae-Mensah, 2016).

Again, access for females, rural communities and students with special needs has been widened by lowering entry grade points and the introduction of quota systems to some university programmes (Leach et al, 2008). Additionally, tertiary education has witnessed transitioning of 6 polytechnics into technical universities, inclusion of 2 new public universities, absorption of private colleges of education by government and the construction of additional colleges of education.

Distance education (DE) has also gradually been integrated into Ghana's tertiary educational system (Kwakwa et al, 2012). These programmes have experienced significant increases in the number of enrollment and resulted in the creation of institutes within institutions purposively to administer such programmes. Also, institutions in the country have adopted the semester system which allows them to operate all year round for full-time and part-time students as well as for vacation/sandwich/summer programmes (Leach et al, 2008).

Further, tertiary education in Ghana has now been driven by science and technology-learning (UNESCO GED Report, 2009). This combined with the recent commoditization of education has contributed significantly to international education provision and demand in the country (UNESCO GED Report, 2009). Tertiary institutions in the country has also undergone differentiation and diversification with regards to institutional mission, programmes and curricular emphasis, admission requirement, staff qualifications, governance arrangements, funding sources, and financing mechanism and strategies (Addae-Mensah, 2016) as well as the adoption of massification and cost sharing as alternative source of funding (Manuh, et al., 2007; Akyeampong, 2010; Arthur & Arthur 2016; Alabi, 2017).

2.4 Trend in Internationalization and International Students Enrollment in Ghana

Internationalization has often been referred to as "the movement of people, programmes, providers, curricula, projects, research and services in tertiary education across national jurisdictional borders" (Vincent-Lancrin, 2007). In Ghana, the number of international students has tended to fluctuate around 2,000 and 3, 500 from 2006 to 2015 (Gordon, 2016). Another striking trend in internationalization in the country is the rapid rise in enrollment of Nigerian and other West African students into both public and private tertiary institutions. However, University of Ghana continues to remain the main destination institution for American and other European students (Gordon, 2016). Available information reveals KNUST attracts majority of undergraduate international students whereas UG remains the destination institution for postgraduate international students in the country (Gordon, 2016).

Also, institutions have established partnerships and collaborations with academic institutions in other countries to offer degree and different academic programs, develop research projects, and collaborate in a variety of ways (Jowi et al, undated). The key operational models of internationalization in Ghana has included franchising; programme sharing; branch campus; off-shore institutions; and distance learning (Gordon, 2016). This has resulted in increased competition with the introduction of top players from US, Europe and lately China either aggressively prospecting students or setting up satellite campuses (Jowi et al, undated) which has been reinforced by perception of quality of programmes and of staff, comparative efficiency of university procedure, stability and security of Ghana as a nation (Hénard et al., 2012 cited in Gordon, 2016)

Reasons for internationalization has often included increase in revenue owing from higher fees for non-nationals; increase in prestige based on ability to attract international students; better accreditation and benchmarking due to demands of partners; increase co-operation between partner universities; more networking among students and staff; improved curricular

to meet international standards; better quality of teaching and increased capacity for research (Knight 2004; Knight & Teferra, 2008 cited in Gordon, 2016)

2.5 Empirical review

Empirically, Mazzarol and Soutar (2002) examined the factors motivating international students' choice for Australia as destination country using convenience sampling of 2,485 international students from Taiwan, Indonesia, China and India from a period of 1996 to 2000. They relied on the push-pull model to identify perception of overseas education, difficulty in gaining access to particular programme of study, unavailability of particular programme of study, intention to migrate after graduation and desire to gain a better understanding of the "West" as push factors, and reputation or profile of destination country, knowledge and awareness of destination country and family or friends perception and recommendation as pull factors motivating students mobility for international education regardless of the source country.

Mazzarol and Soutar (2002) identified institutions reputation for quality, institutions links or alliances with other institutions familiar with students, institutions reputation for having quality staff, institutions alumni base and referral process, number of students enrolled and institutions recognition of students' qualification as important factors that influenced international students' choice of host institution.

Bohm et al (2004) also explored the attractiveness factors responsible for the growth within various source regions for UK's market share of international students using discrete choice model elasticity. It was observed that quality and employment prospects were influential attractiveness factors for all regions except for Sub-Sahara Africa which valued accessibility and affordability of international education as influential attractiveness factors. Perceived

quality of education provision and future employment prospects associated with UK qualification were identified as overriding factors responsible for UK's market share of international students.

Sahasrabudhe (2007) as cited in Carson (2008) also examined international students' mobility from the perspective of graduate engineering students from India in the US using the push-pull approach. The study found that, the most important push factors were dissatisfaction related to quality of faculty, curriculum, infrastructure, reservation policies, undergraduate admission process, desire to pursue graduate education and limited opportunities for graduate programs in India. Sahasrabudhe (2007) further observed highly-ranked universities, internationally recognized degrees, opportunity for practical industry experience and highly-regarded faculty members as major pull factors that made US a destination of choice. In relation to the institution of choice, high academic reputation of institutions, program available and program specialization were identified to influence students' decision.

Lui and Wang (2008) also investigated into the empirical determinants of international students' mobility using pooled cross-sectional time series data for US over the period of 1993 to 2006. They suggested that, tuition fee, US federal support of education, size of the "young" generation of source of country and distance between host and source country have significant influence on international students' mobility. The study also observed a positive but small coefficient and t-value for both source country's global involvement and purchasing power parity between host and source country which indicates that, both source country's global involvement and purchasing power parity imposed negligible influences on international students' mobility.

Koe and Saring (2012) also explored the factors influencing foreign undergraduate's intention to study at graduate school in Malaysia and to verify the relationships of foreign undergraduate

students' intentions to study at graduate school with institutional and external factors. They observed that, location, low cost, university reputation, academic programme, learning facilities and country image had significant influence on foreign undergraduates' intentions to study at graduate school. Family/peer influence was however observed to have no significant relationship with the dependent variable.

Bhati et al (2013) studying the underlying factors influencing the decision of students from China and India to pursue tertiary education at Australian institutes of higher education located in Singapore used qualitative survey and a mixed method of analysis. It was observed that students' desire for international exposure, quality of education, future employability and multicultural atmosphere were important factors that influence students' decision. The study also identified safety and security, geographical proximity and cost of living as important factors for students in opting for Australian education in Singapore.

Phang (2013) investigated into the factors that influence international students' decision on study destination and how the University of Gothenburg, Sweden can redesign its marketing and recruitment strategies towards international students using data collected through semi-structured interviews. The principle of thematic analysis was applied, and it was identified that quality of online and offline communication; study destination's attractiveness in relation to institutional image, desired programme and courses, language, environment and cost; and social networks in relation to family and friends, faculty and student testimonies as influential on international students' study destination decisions.

Fosu and Poku (2014) exploring the important factors that influence students' choice of university and also to measure the satisfaction levels of students with respect to the services offered by Ghanaian universities using descriptive research design and primary data from 400 randomly sampled respondents from Kwame Nkrumah University of Science and Technology

and Christian Service University College observed students are influenced by multiples of factors when deciding which university to attend. Key among these factors are programmes offered and areas of specialization, high caliber lecturers, recognition of qualification by employers, well stocked library and internet facility, international accreditation by qualification and flexible lecture timetable.

Frimpong (2015) examining the emerging trends, patterns and dynamics of student mobility from developed and developing countries and its implications on Ghana using international students from the University of Ghana as a target population and applying a mixed method of analysis observed poor educational infrastructure, political unrest and population increases as the major push factors motivating students from the sub-region to seek education in Ghana. She also identified programme and duration of study, peace and stability and culture as the major pull factors influencing students' mobility to Ghana.

Ozoglu et al (2015) exploring the factors influencing international student's decision to choose Turkey as their study destination and the challenges they experienced using qualitative research design and a three-step systematic coding analysis identified quality of education, affordability of education, scholarship opportunities, proximity and recommendation as influential factors motivating student's decision.

Antti (2016) investigating the driving factors behind international degree students' study destination choice process in Finland and the University of Oulu using content analysis method identified reputation of Finland in specialized field of education, students desire to experience different lifestyle and tuition-free education as specific pull factors in Finland. The study also identified reputation in specialized field and language of delivery of degree programmes as the pull factors in the context of University of Oulu.

Nyarko and Ephraim (2016) reviewing the issue of student mobility to determine the factors militating against student's mobility in international education in Ghana with students from the University of Mines and Technology as the target population. They employed a questionnaire survey and descriptive design. Relatively lower cost of education, flexibility of curriculum of institutions, parity of admission requirements, socio-cultural similarities and relatively friendly immigration procedures were identified as major factors influencing foreign students demand for education in Ghana. Though they present no detailed statistics, they posit that, international student's choice to study in Ghanaian institutions are motivated by these major factors.

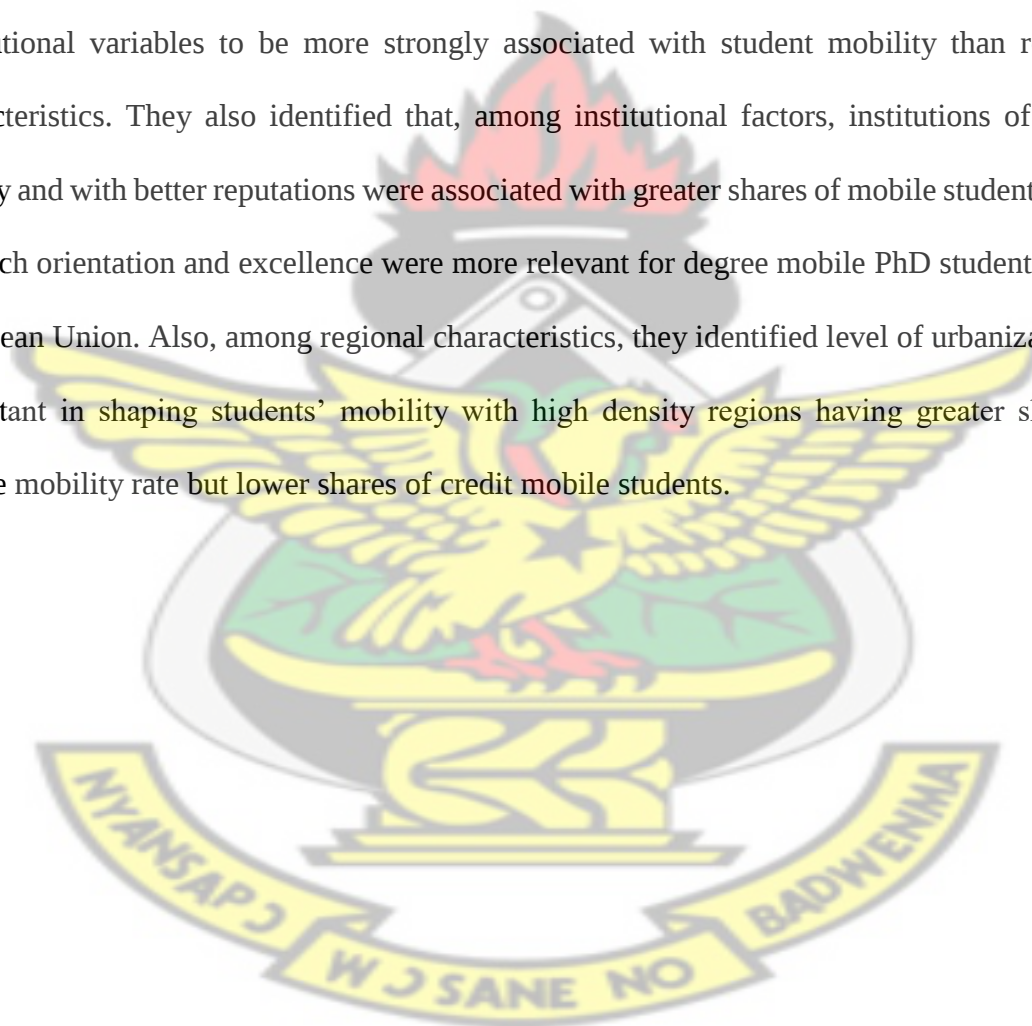
Nyarko & Ephraim (2016) further posit that, insufficient tertiary institutions capacity to meet rising demand, old infrastructure with limited sitting capacities, post-colonial association, propensity of tertiary students to study abroad, absence of research policy and obsolete study programme are contributive factors for the rise in outbound of students from home countries.

Beine et al. (2017) examining the determinants of international students' mobility at the university level applying a nested logit model and using data from UK and Italy identified a negative role of university's tuition fees on the flow of students choosing to study in that university. They further observed support in favor of the role of university's quality, institutional capacity and expected returns to education after graduation as influential in student mobility decisions.

Conlon et al. (2017) analyzing the determinants of overseas demand for UK higher education and to consider the impact of macroeconomic characteristics on future enrollment and tuition fee income and using panel data with fixed effect specification and controlling for time-invariant characteristics between countries, identified UK fee level, exchange rate, competitors fee level, energy prices, overseas economic growth and policy intervention within a country as influential to the number of inbound students in UK. They further demonstrate that factors such

as overseas economic growth poses relatively immediate effect on demand for UK education by foreign students whereas exchange rate and UK fee level poses both immediate and long-term impacts.

Sanchez Barrioluengo and Flisi (2017) examining the factors associated with student' mobility at the European Union level comparing between institutional factors and regional attractiveness using two regression models having the same regressors but different dependent variables, a two-level hierarchical structure data and a mixed method approach of estimation identified institutional variables to be more strongly associated with student mobility than regional characteristics. They also identified that, among institutional factors, institutions of higher quality and with better reputations were associated with greater shares of mobile students while research orientation and excellence were more relevant for degree mobile PhD students in the European Union. Also, among regional characteristics, they identified level of urbanization as important in shaping students' mobility with high density regions having greater share of degree mobility rate but lower shares of credit mobile students.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter captures the methods used for the study. It focused on the design, data collection strategy, sampling strategy, and definition and measurement of variables of interest to the study. It also discusses the data analysis and estimation techniques.

3.1 Research Design

The study adopted a quantitative research method based on a questionnaire survey design. This was to facilitate the collection of original data that can be quantified and interpreted in realization of the research objectives. The study further relied on primary data collected using a questionnaire containing close-ended questions with a Likert-scale measurement to measure variables of interest for the study. To ensure a collection of reliable data required for the realization of the research objectives, the data collection instrument was pre-tested to ensure perfection of wording and concepts to facilitate elimination of possible ambiguities and biasing effect of questions.

3.2 Target Population

The target population were all foreign students currently studying in tertiary institutions in Ghana. Of these, foreign students in Ghana Technology University College (GTUC) were taken as proxy due to resource constraint. GTUC is an institution which has roots from Ghana Telecom's flagship Training center which aimed at training telecommunication technicians for British West Africa (<https://site.gtuc.edu.gh>). Through privatization and deregulation, the center became a source of teaching and certification in Telecommunication Engineering for mainly employees of the then Ghana Telecom and other institutions in the sub-region

(<https://site.gtuc.edu.gh>). The institution with several local and international affiliations matriculated a total of 1200 students in the 2017/2018 academic year to pursue various programmes (<http://citifmonline.com>). The institution currently has a student population of 6,177 comprising of 5,909 local and 268 foreign students (<https://erp.gtuc.edu.gh>).

3.3 Sample Size Selection and Sampling Procedure

The study divided students into two strata to ensure equal representation of students from both strata. The first stratum represented foreign/non-Ghanaian students whilst the second represented local/Ghanaian students.

Since sample size has enough influence on hypothesis testing in quantitative research, the study adopted a 90% confidence level and 5% confidence interval due to time and resource constraint to estimate the sample size. Based on Taro Yamane's formula below where n = sample size, N = population size = 6177, e = level of precision/confidence interval = 0.05 in the estimation of sample size.

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

The minimum recommended sample size using the information and formula above is 260 comprising of 47 foreign students and 213 local students.

3.4 Model Specification

The model for the study was developed based on the Heckscher Ohlin's model of trade and Tinbergen's gravity model of trade. The study thus assumes that host/destination countries possess macroeconomic and institutional endowment in tertiary education production relative to source/originating countries therefore necessitating the bilateral interaction between countries in the form of inbound and outbound movement of students. Modeling this in the form of Tinbergen's gravitational model of trade; it can be assumed that tertiary education supplied at origin i denoted Y_i is attracted to a mass of demand for it at destination j denoted by Y_j but the potential flow is reduced by cost of interaction between origin i and destination j denoted by T_{ij} (Anderson, 2010). Thus;

$$X_{ij} = C \frac{Y_i Y_j}{T_{ij}}$$

Where X_{ij} represents the volume of interaction/export/trade/demand between country i and j , C is the models constant, Y is economic mass/factors of production/labor and T is the cost of interaction/export/trade between country i and j .

Adapting, linearizing and incorporating institutional and macroeconomic variables based on related studies (Mazzarol & Soutar, 2002; Gray et al., 2003; Cubillo et al., 2006; Ancheh et al., 2007; Ismail et al., 2007; Wagner & Fard, 2009; Lei & Chuang, 2010; Sia, 2010; Koe & Saring, undated; Frimpong, 2015; Nyarko & Ephraim, 2016) into the gravity model yields;

$$I_i = \alpha + \beta X_i + \beta' \Phi_i + u_i$$

Where,

- I_i is demand for country i 's tertiary education and take exclusive values of 0 and 1
- X_i is vector of institutional variables of country i (fees charged, programmes offered, institutional reputation, teaching & learning facilities, programme and course content, location, advertisement, etc.)
- Φ_i is the vector of macroeconomic variables for country i (security, purchasing power parity, educational expenditure, population size, etc.)
- u_i is vector of variables independent of the factors specified in the model for both country i (parent education, income, etc. that equally influence student demand for country i 's education).
- α is the model's constant.
- β and β' is vector of the model's coefficients.

Thus, yielding the logistic probability model as follows;

$$P(I_i = 1 | X_i; \Phi_i; \Psi_j; Y_j) = \frac{e^{(z)}}{1 + e^{(z)}}$$

Where $z = \alpha + \beta X_i + \beta' \Phi_i + u_i$

3.5 Variable Definition and Expected Sign

Demand is the dependent variable in the model of interest and defined in terms of the number of non-Ghanaian respondents. This is measured as a discrete variable of 0 and 1, with 1 denoting foreign respondent (successful outcome) and 0 otherwise.

Fees charged refers to tuition and other auxiliary charges as well as mode of payment prescribed by institutions. Ancheh et al (2007), Lui and Wang (2008), Fernandez (2010), Sia (2010) and Beine et al (2017) posit that students tend to be cost-conscious preferring quality education at demand sensitive costs. They further suggest that, student's decision to study and in which institution is thus negatively influenced by academic fees. This is expected to impose a positive influence on demand.

Programmes offered is defined in terms of academic and/or professional courses and/or requirements leading to the awarding of certificates, flexibility and duration, content and structure. Studies such as O'Brien et al (2007), Ismail et al (2007), Yusuf et al (2008), Ivy (2010), Sia (2010) posit that programme availability and content influence students' choice of institution. This is expected to have a positive influence on demand.

Institution's reputation is defined in terms of faculty strength and expertise, research and innovation, certificate recognition, means of evaluating and obtaining feedback on teaching and students learning to protect academic standards. Studies such as Ancheh et al. (2007), O'brien et al. (2007), Jager & Soontiens (2009), Daily et al (2010) and Sia (2010), have stressed the importance of institutional reputation in influencing international student's choice of institution. This is expected to have a positive influence on demand.

Teaching and learning facilities refers to lecture halls, physical environment, laboratories, library and resources required for effective teaching and learning in institutions . Studies (Price et al, 2003; Wagner & Fard, 2009; Fernandez, 2010; Padlee et al, 2010; Sia, 2010) suggest that

teaching and learning facilities are highly important consideration for students' choice of institution. This is expected to have a positive influence on demand.

Students' services refer to provision of support, information and guidance to students and families. This is measured in terms of the existence and effectiveness of career and counselling, financial aid, etc. units. This is expected to impose a positive influence on demand.

Location refers to the geographical position of institution in context of major landmarks or place of attraction. Studies by Keskinen et al (2008), Padlee et al (2010) and Sia (2010) seem to posit that, location of institutions is influential on students' demand decisions. This is expected to have a positive influence on demand.

Advertisement refers to audio or visual announcement via public mediums to promote the institution, its products and services. This is expected to impose a positive influence on demand.

Security in the context of this study refers to the quality of safety in terms of political stability; freedom from danger, racial or ethnic abuse, fear and anxiety; low crime rate etc. This builds country's image which as identified by Gray et al (2003) and Cubillo et al (2006), help develops institution's brand and thus influence foreign students purchase intentions. Frimpong (2015) also suggest that security is an important pull factor influencing foreign mobility decisions. This is expected to impose a positive influence on demand.

Purchasing power parity refers to standard/cost of living measured in terms of inflation and exchange rate. Padlee et al (2010) for instance suggest that, the price/cost of a country's currency for other currencies significantly influence students' inbound decisions. Bird and Turner (2013) also posits that, increase in exchange rate leads to a decrease in foreign enrollment. This is expected to impose a negative influence on demand.

Educational expenditure refers to public spending on education including direct expenditure on educational institutions and educational-related public subsidies given to households as proportion of GDP. According to Lui and Wang (2008), increase education support in terms of public expenditure could improve quality and access and thus impose a positive influence on demand. This is thus expected to have a positive influence on demand.

Population refers to number and distribution of people within a country at point in time. This is measured in terms of the number of people within the age group for tertiary education. Lui and Wang (2008) report that, tertiary-age population impose a positive and significant influence on demand. Bird and Turner (2013) also suggests that, an increase in tertiary-age population resulted in an increase in foreign enrollment especially for countries with no high-ranking universities. This is expected to impose a positive influence on demand.

Immigration requirements/procedures is measured in terms of the relative ease of movement of international students. According to Lomer (2018), student mobility is easily influenced by migration policies and procedures. The study suggested that, unfriendly policies and procedures had potential to deter foreign students demand but friendly policies and procedures had no significant influence on demand. Contrary to this assertion, immigration requirement is expected to have a positive influence on demand.

3.6 Estimation Strategy

The study adopted a logistic probability model estimation using maximum likelihood method of estimation to predict the probable rate of influence of the explanatory variables of interest on international/foreign students demand for tertiary education in Ghana.

The study categorizes demand for tertiary education in Ghana into two, Ghanaian/local student demand and international/foreign students and thus assign a value of 0 for Ghanaian students and 1 otherwise. Hence, the conditional probability of a successful outcome given the explanatory variables $[\Pr(I_i = 1 | X_i; \Phi_i; \Psi_j; Y_j)]$ measures the change in the probability of success with respect to a change in any of the explanatory variables holding all other factors constant.

To determine the explanatory variables to include in the regression, correlation analysis was undertaken to establish the degree of correlation between the variables. This was to limit the potential problem of multicollinearity in order to obtain valid results. Since explanatory variables are rarely unrelated with each other, only variables with significantly high correlation to others were excluded from the regression.

3.7 Data Analysis

In order to examine the general characteristics of international students, descriptive statistics including summaries and measures of central tendency were used to describe respondents' characteristics. Also, in examining the institutional and macroeconomic variables influencing foreign demand for education in Ghana, we first regressed selected institutional and macroeconomic variables on demand separately to identify the explanatory power of these variables. Statistically significant variables from both regressions was then used in estimating the final foreign demand for education equation. Test conducted for the study included reliability test, correlation test, and specification error test

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents the analysis and discussions of the study's results. Issues presented in this chapter mainly includes characteristics of respondents and the effect of selected institutional and macroeconomic variables on respondents' demand for tertiary education in Ghana.

4.1 Characteristics of respondents

4.1 Student type and Gender distribution

Table 4.1 provides information on student type and gender distribution of respondents. This was specifically undertaken to determine the gender distribution of foreign students in Ghana.

Table 4.1 Student Type and Gender distribution of respondents

Student-type	Gender			Total
	Female	Male	Prefer not to say	
Ghanaian	98	108	7	213
Foreign	19	28	0	47
Total	117	136	7	260

Source: Fieldwork, September – October 2018

Out of the 260 respondents, 47 representing approximately 18.1% were foreign students and 213 representing 81.9% were Ghanaian students. Out of the 47 foreign students, 19 representing 40.4 % were female and 28 representing 59.6% were male by gender. Similarly, out of the 213 Ghanaian respondents, 98 representing 46% of the total respondents were female, 108 representing 50.7% of the total respondents were male and 7 representing 3.3% preferred not to disclose their gender. This suggests that, institutions in the country are often

attractive to male students than female students considering both local and foreign students. This is however inconsistent with the finding of work such as Frimpong (2015) which exploring the motivations and implications of foreign students' mobility to Ghana using the University of Ghana as target institution observed otherwise specifically in relation to foreign students. This finding can predicate that, gender distribution of students in the country particularly in relation to international students is institution-specific, with technology and engineering biased institutions having more male to female foreign students than social-science liberal institutions. This could be attributed to the relative differences in interest and career preferences between men and women.

4..1.2 Student type and Age group distribution

Table 4.2 displays information on student type and age distribution of respondents. This was undertaken to examine the age distribution of foreign students in Ghana.

Table 4.2 Student Type and Age group of respondents

Student-type	Age group					Total
	15 - 19yrs	20 - 24yrs	25 - 29yrs	30 - 34yrs	Above 34yrs	
Ghanaian	26	98	59	20	10	213
Foreign	1	26	16	4	0	47
Total	27	124	75	24	10	260

Source: Fieldwork, September – October 2018

In relation to age distribution, out of the foreign respondents, 1 was between the 15 – 19 age group, 26 representing 10% of the total respondents were between the 20 – 24 age group, 16 representing 6.2% of the total respondents were between the 25 – 29 age group and 4 representing 1.5% of the total respondents between the 30 – 34 age group. In relation to Ghanaian respondents, 26 representing 10% of the total respondents were between the 15 – 19 age group, 98 representing 37.7% of the total respondents were between the 20 -24 age group, 59 representing 22.7% of the total respondents were between the 25 – 29 age group, 20

representing 7.7% of the total respondents were between the 30 – 34 age group and 10 representing 3.8% of the total respondents were above 34 years. This also suggest that, tertiary institutions in Ghana are predominantly attractive to relatively young indigenous and foreign people below the age of 35 years. This is consistent with the finding of Tremblay (2005) and Frempong (2015). Kwakwa and Arthur (2012) suggested that, tertiary education involves rigorous academic work which imposes stress on students and hence attractive to the relatively young generation.

4.1.3 Nationality of respondents

Table 4.3 provides information on nationality of respondents. This was undertaken to determine the originating countries of foreign students in Ghana.

Table 4.3 Nationality of respondents

Nationality	Frequency	Percent	Cumulative
Angola	3	1.15	1.15
Benin	3	1.15	2.31
Burkina Faso	1	0.38	2.69
Cameroon	1	0.38	3.08
Chad	2	0.77	3.85
Congo	3	1.15	5
Cote D'Ivoire	5	1.92	6.92
Gabon	2	0.77	7.69
Gambia	2	0.77	8.46
Ghana	213	81.92	90.38
Guinea	1	0.38	90.77
Liberia	1	0.38	91.15
Mali	1	0.38	91.54
Niger	2	0.77	92.31
Nigeria	16	6.15	98.46
Togo	4	1.54	100
Total	260	100	

Source: Fieldwork, September – October 2018

In relation to nationality, all respondents were observed to originate from African countries. Specifically, 81.92% were Ghanaians, 6.15% were Nigerians, 1.92% were Ivorians, 1.54% were Togolese, 1.15 % were from Angola, 1.15% from Benin and 1.15% from Congo. Also,

0.77% of the respondents were from Chad, 0.77% from Gabon, 0.77% from Gambia and 0.77% from Niger. Again, 0.38% of the respondents were from Burkina Faso, 0.38% were from Liberia, 0.38% were from Guinea, 0.38% from Mali and 0.38% from Cameroon. Contrary to the above, Frempong (2015) using the University of Ghana as target institution to explore the motivations and implications of foreign students' mobility to Ghana identified both African and non-African students but the share of African students was greater than non-African students in the target institution. This finding could be attributed to the extensive engagement of the target institution in foreign exchange programmes that tends to facilitate outbound mobility of students as opposed to that undertaken in other institutions.

4.1.4 Respondents motive for tertiary education

Table 4.4 depicts information on respondents' motive for tertiary education. This was undertaken to determine the motive of foreign students in pursuing tertiary education in Ghana.

Table 4.4 Respondents motive for tertiary education

Student-type	Educational Motive				Total
	Certificate	Employment/career opportunities	Knowledge acquisition	Prestige/Social status	
Ghanaian	1	100	112	0	213
Foreign	0	29	17	1	47
Total	1	129	129	1	260

Source: Fieldwork, September – October 2018

The study identified that, majority of the students were pursuing higher education either to acquire knowledge or enhance their career/employment prospects. Out of the 260 respondents, 99.2% of the respondents confirmed this with the remaining 0.8% indicating prestige and need for certificate as their motive for pursuing tertiary education. Additionally, 29 representing 61.7% of the 47 foreign respondents indicated career/employment prospect as their motive for pursuing tertiary education. Also, 17 out of the 47 foreign respondents indicated knowledge acquisition as their motive for pursuing tertiary education. This predicates that, people seek

tertiary education which could enhance their career/employment prospect or gain them applicable knowledge for personal growth and development as identified by Kwakwa and Arthur (2012).

4.1.5 Respondents programme of study

Table 4.5 provides information on respondents' programmes of study. This was undertaken to examine if programmes offered in Ghana's universities are the source of attraction to foreign students.

Table 4.5 Respondents programme of study

Student-type	Programme of study						Total
	Social Science oriented	Business Admin	IT/Computer oriented	Engineering oriented	Doctorate	Masters	
Ghanaian	23	66	70	26	2	26	213
Foreign	1	13	14	8	0	11	47
Total	24	79	84	34	2	37	260

Source: Fieldwork, September – October 2018

The study identified that majority of the respondents were enrolled in computer and business related programmes. Results from Table 4.5 indicates that 84 representing 32.3% of the entire respondents were enrolled in information technology/computer related programmes, 79 representing 30.4% in business administration, 37 representing 14.3% in masters programmes, 34 representing 13.1% in engineering related programmes, 24 representing 9.2% in social science related programmes and 2 in doctorate programmes. The most popular study programmes for foreign students can be identified to be information technology/computer related, business administration, masters and engineering related programmes. This finding is partly consistent with the findings of Chernorot (2016), which observed business studies, engineering and IT as the most popular study programmes among foreign students attracted to Finland's education. This finding is also suggestive that, irrespective of study destination,

foreign students prefer information technology/computer, business administration, masters and engineering related programmes to doctorate and social science related programmes.

4.2 Model Output and Interpretation

4.2.1 Estimation of Model 1

Table 4.7 depicts the output of the logistic regression of model 1 using maximum likelihood estimation. This was undertaken to determine the institutional variables influencing international students demand for tertiary education in Ghana.

Table 4.6 Logit regression of model 1

Parameter	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
Fees Charged	0.4032767	0.2870391	1.40	0.160	-0.1593095	0.9658629
Programme Offered	0.8584695***	0.2867086	2.99	0.003	0.2965309	1.420408
Institutional Reputation	0.7280422***	0.2532805	2.87	0.004	0.2316216	1.224463
Teaching & Learning	0.2608007	0.2636231	0.99	0.323	-0.255891	0.7774925
Student Support	0.1334067	0.2581977	0.52	0.605	-0.3726515	0.6394648
Location	-0.1732034	0.2262541	-0.77	0.444	-0.6166533	0.2702466
Advertisement	-0.3639405*	0.2169682	-1.68	0.093	-0.7891903	0.0613094
Intercept	7.229965	1.246846	-5.80	0.000	-9.673738	-4.786192
Number of obs.	=	260				
LR chi2(7)	=	50.24				
Prob > chi2	=	0.0000				
Pseudo R2	=	0.2045				
Log likelihood = -97.742928						

***Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Fieldwork, September – October 2018

From Table 4.7, a unit improvement in fees charged results in 0.4 increase in the log-odds of foreign students demand for tertiary education. This result is expected because an improvement in the relative attractiveness of tuition and other auxiliary charges as well as payment plan prescribed by institutions in the country makes that of other countries unattractive and facilitates interaction in this case in the form of inbound mobility of students. This finding is consistent with studies conducted by Ancheh et al (2007), Lui and Wang (2008), Fernandez

(2010), Sia (2010) and Beine et al (2017) and confirms that foreign students tend to be cost-conscious preferring quality education at demand sensitive costs. However, this result is statistically not significant even at a 10% level. The study therefore accepts the null hypothesis and conclude that, fees charged does not really influence foreign students demand for tertiary education in Ghana.

As expected, a unit increase in programmes offered was observed to result in a 0.86 increase in the log-odds of foreign students demand for tertiary education. This outcome can be attributed to the fact that, improvement in the number, flexibility, duration, content and structure of programmes offered influence employment opportunities and knowledge acquired thus making programmes available in other countries/institutions unattractive. Also, given that students rationally prefer programmes that increases their productivity and for which future benefits or returns will outweigh cost, availability of such programmes is expected to influence their destination institution choices as established by O'Brien et al (2007), Ismail et al (2007), Yusuf et al (2008), Ivy (2010), Sia (2010). Statistically, the influence of programme offered was observed to be significant even at a 1% level. The study therefore rejects the null hypothesis and conclude that, programmes offered influence foreign students demand for tertiary education in Ghana.

A unit increase in institution's reputation was observed to result in a 0.73 increase in the log-odds of foreign students demand for tertiary education. This outcome meets the priori expectation that reputation in terms of faculty strength and expertise, research and innovation, certificate recognition, means of evaluating and obtaining feedback on teaching and students learning to protect academic standards influence knowledge imparted and acquired, and student's employment prospects as well as lifetime earnings. This supports Ancheh et al. (2007), O'brien et al. (2007), Jager & Soontiens (2009), Daily et al (2010) and Sia (2010)'s assertion that institutions reputation has importance influence on student's education

destination choices. Statistically, this was observed to be significant even at a 1% level. The study therefore rejects the null hypothesis and conclude that, institution's reputation influences foreign students demand for tertiary education in Ghana.

In addition, a unit increase in teaching and learning facilities was observed to be associated with a 0.26 increase in the log-odds of foreign students demand for tertiary education. This result as expected indicates that, a relative attractiveness of institutions' teaching and learning facilities in the country makes that of other countries unattractive and facilitates interaction in this case in the form of inbound mobility of students. This finding is also consistent with studies conducted by Price et al, 2003; Wagner & Fard, 2009; Fernandez, 2010; Padlee et al, 2010; Sia, 2010 which suggests that teaching and learning facilities are highly important consideration for students' choice of institution. However, this result was not significant even at a 10% level. This implies that foreign students do not pay special attention to teaching and learning facilities when considering the demand for tertiary education.

A unit increase in student support services rendered by institutions in the country was observed to be associated with a 0.13 increase in the log-odds of foreign students demand for tertiary education as expected. This outcome could be explained by the fact that such services enhance students study experience which according to social capital or network theory imposes direct and indirect influence on peer's educational decision making. However, this result was not significant even at a 10% level. This implies that, foreign students demand for tertiary education in the country is influenced by student support services.

Again, a unit increase in the influence of location was unexpectedly observed to be associated with a .017 reduction in the log-odds of foreign students demand for tertiary education. This could be explained by the fact that most institutions in the country are in major cities/towns with relative traffic congestion and cost of living compared to other centers in the country. This

finding thus supports the suggestion of Keskinen et al (2008), Padlee et al (2010) and Sia (2010) that location of institutions is influential on students' demand decisions. However, this was observed to be statistically insignificant at a 10% level. The study therefore accepted the null hypothesis and conclude that, foreign students' tertiary education demand decision is not influenced by location in Ghana.

A unit increase in advertisement by institutions resulted in a 0.36 reduction in the log-odds of foreign students demand for tertiary education. This unexpected outcome could be attributed to the strong influence of parents in such education destination decisions. Also, as indicated by social capital/network theories, social network especially in relation to experiences from parents, peers, and educational consultants can be assumed to supplant advertisement/marketing strategies adopted by institutions in the country. Statistically, this was observed to be significant at a 10% level. This implies that, advertisement has influence on foreign students demand for tertiary education in the country.

Finally, model 1 was identified to be statistically significant with a Prob > chi2 = 0.000 and a LR chi2(7) = 50.24. This indicates that, one or more of the institutional variables captured in the model was important in predicting foreign demand for tertiary education. However, these variables could only predict approximately 20% of the variations in foreign demand for education as indicated by the model's pseudo R2.

4.2.2 Diagnostic test

Table 4.8 and 4.9 presents the output of the diagnostic test conducted on model 1. This was undertaken to determine correlation and reliability of variables captured in model 1.

Table 4.7 Correlation of institutional variables

Variables	Fees charged	Programme offered	Institutional Reputation	Teaching & Learning facility	Student Support	Location	Advert
Fees charged	1.0000						
Programme offered	0.4184	1.0000					
Institutional Reputation	0.3978	0.4868	1.0000				
Teaching & Learning facility	0.5071	0.5598	0.4853	1.0000			
Student Support	0.4279	0.4644	0.4223	0.48	1.0000		
Location	0.3507	0.497	0.3863	0.4778	0.4232	1.0000	
Advert	0.408	0.4045	0.3618	0.3987	0.4002	0.4408	1.0000

Source: Fieldwork, September – October 2018

Table 4.8 Reliability of institutional variables (Cronbach alpha)

Average interitem covariance:	0.3078801
Number of items in the scale:	8
Scale reliability coefficient:	0.8363

Source: Fieldwork, September – October 2018

Except for fees charged and teaching and learning facilities as well as programme offered and teaching and learning facilities with correlation greater than 0.5, all other institutional variables used had positive correlations less than 0.5 which is suggestive of the absence of multicollinearity. This relatively strong relationship between teaching and learning facilities, fees charged and programmes offered could be suggestive that, institutions whose teaching and learning facilities are attractive to respondents are also perceived to offer relevant/demand driven programmes and charging demand sensitive fees. In relation to internal consistency or

scale reliability of test items under model 1, the study observed an internal consistency of .8363 and average interitem covariance of .3079 as depicted in Table 4.9.

4.2.3 Estimation of Model 2

Table 4.10 depicts the output of the logistic regression of model 2 using maximum likelihood estimation. This was undertaken to determine the macroeconomic variables influencing international students demand for tertiary education in Ghana.

Table 4.9 Logistic regression of model 2

Parameter	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
Security	1.589971***	0.2800397	5.68	0.000	1.041103	2.138838
Purchasing Power Parity	0.0006068	0.2395384	0.00	0.998	-0.4688797	0.4700934
Public Edu. Expenditure	-0.387364	0.2553928	-1.52	0.129	-0.887925	0.1131963
Population Size	-0.074792	0.2500719	-0.3	0.765	-0.5649239	0.4153398
Immigration Procedures	0.696859***	0.2305325	3.02	0.003	0.2450236	1.148694
Intercept	-6.618341	1.049415	-6.31	0.000	-8.675156	-4.561525
Number of obs.	=	260				
LR chi2(7)	=	87.36				
Prob > chi2	=	0.0000				
Pseudo R2	=	0.3555				
Log likelihood = -79.182623						

***Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Fieldwork, September – October 2018

From Table 4.10, a unit improvement in security was observed to be associated with a 1.59 increase in the log-odds of foreign students demand for tertiary education. This was expected because as previously suggested by Gray et al (2003) and Cubillo et al (2006), security measured in terms of political stability; freedom from danger, absence of racial or ethnic abuse, freedom from fear and anxiety; low crime rate etc. helps build country's image and augments institution's brand thus influencing foreign students purchase intentions. Statistically, this was observed to be significant at a 1% level. This implies that, foreign students consider security in their tertiary education demand decisions.

Changes in purchasing power parity was observed to result in a 0.00 change in the log-odds of foreign students demand for tertiary education. This outcome was identified to have no statistical significance. This implies that, purchasing power parity has no influence on foreign student's tertiary education demand in the country. This outcome can be attributed to the charging/pricing of expenses/expenditure in foreign currency particularly the dollar for which both originating, and destination currency often experience volatilities.

Additionally, a unit increase in public educational expenditure in the country was observed to result in a 0.39 reduction in the log-odds of foreign students demand for tertiary education. This outcome was however observed to have no statistical significance. Implication of this outcome is that, foreign student tertiary education demand is not influenced by public educational expenditure. This outcome can be attributed to the fact that, increase in public education expenditure in emerging economies are usually aimed at improving access, quality and boost enrollment of nationals to curtail frequent outbound mobility of nationals which has often be associated with the brain drain experience in these economies.

A unit increase in the number and distribution of people within the age group for tertiary education in the country was observed to be associated with a 0.08 reduction in the log-odds of foreign students demand for tertiary education. Evidently, rise in indigenous population of tertiary going age increases local demand for tertiary education. This limits admission opportunities available to foreign student given that institution have capacity beyond which quality is inversely affected. However, this outcome was observed not to be statistically significant. Implication is that, foreign students paid no attention to the number and distribution of people within the tertiary education age group in their tertiary education decisions.

Also, a unit improvement in immigration procedures in the country was observed to result in a 0.70 increase in the log-odds of foreign students demand for tertiary education. This was

observed to be statistically significant at a 1% level. The study therefore rejected the null the hypothesis and conclude that, immigration procedures impose significant influence on foreign student's tertiary education demand in the country. This is same as Lomer (2018) who reported that student mobility is easily influenced by migration policies and procedures.

Finally, model 2 was identified to be statistically significant with a Prob > chi2 of 0.000 and a LR chi2(5) of 87.36. This is suggestive that one or more of the explanatory variables used in the model was important in predicting international education demand in Ghana. These variables also had a much greater predictive power of approximately 36% of the variations in foreign demand for education as indicated by the model's pseudo R2 compared to the institutional variables.

4.2.4 Diagnostic test

Table 4.12 and 4.13 presents the output of the diagnostic test conducted on model 1. This was undertaken to determine correlation and reliability of variables captured in model 2.

Table 4.10 Correlation of macroeconomic variables

	Security	PPP	Public Edu. exp.	Population Size	Immigration
Security	1.0000				
PPP	0.3699	1.0000			
Public Edu. exp.	0.0526	0.3138	1.0000		
Population Size	0.1956	0.3719	0.4474	1.0000	
Immigration	0.4287	0.3201	0.1752	0.2925	1.0000

Source: Fieldwork, September – October 2018

Table 4.11 Reliability of macroeconomic variables (Cronbach alpha)

Average interitem covariance:	0.1916523
Number of items in the scale:	6
Scale reliability coefficient:	0.6779

Source: Fieldwork, September – October 2018

All macroeconomic variables used in model 2 had positive correlation less than 0.5 which is suggestive of the absence of multicollinearity. In relation to internal consistency or scale reliability of test items under model 2, the study observed an internal consistency of .6779 and average interitem covariance of .1917 as depicted in table 4.13

4.2.5 Estimation of Model 3

Table 4.14 depicts the output of the logistic regression of model 3 using maximum likelihood estimation. This was undertaken to examine the combined influence of selected institutional and macroeconomic variables on international students demand for tertiary education in Ghana.

Table 4.14 Logistic regression of model 3

Parameter	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
Programme Offered	0.6895874*	0.3032997	2.27	0.023	0.0951309	1.284044
Institutional Reputation	0.3889427	0.2855481	1.36	0.173	-0.1707214	0.9486067
Advertisement	-0.2881677	0.2358037	-1.22	0.222	-0.7503345	0.1739992
Security	1.333402***	0.2840203	4.69	0.000	0.776733	1.890072
Immigration Procedures	0.6773689***	0.2313803	2.93	0.003	0.2238718	1.130866
Intercept	-9.325035	1.465549	-6.36	0.000	-12.19746	-6.452611
Number of obs.	=	260				
LR chi2(5)	=	93.95				
Prob > chi2	=	0.0000				
Pseudo R2	=	0.3823				
Log likelihood = -75.891516						

***Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Fieldwork, September – October 2018

As expected, a unit increase in the influence of programmes offered was also observed to result in a 0.69 increase in the log-odds of foreign students demand for tertiary education in the country. This outcome could also be attributed to the fact that, improvement in the number, flexibility, duration, content and structure of programmes offered influence employment opportunities and knowledge acquired thus making programmes available in other countries/institutions unattractive. Also, given that students rationally prefer programmes that

increases their productivity and for which future benefits or returns outweighs cost, availability of such programmes influence their destination institution choices as established by O'Brien et al (2007), Ismail et al (2007), Yusuf et al (2008), Ivy (2010), Sia (2010). Statistically, the influence of programme offered was significant at a 10% level. This implies that, tertiary education demand by foreign students is responsive to programmes offered even when considering institutional and macroeconomic factors in the Ghana.

A unit increase in institution's reputation was observed to result in a 0.39 increase in the log-odds of foreign students demand for tertiary education. This outcome meets the priori expectation that reputation in terms of faculty strength and expertise, research and innovation, certificate recognition, means of evaluating and obtaining feedback on teaching and students learning to protect academic standards influence knowledge imparted and acquired, and student's employment prospects as well as lifetime earnings. This supports Ancheh et al. (2007), O'brien et al. (2007), Jager & Soontiens (2009), Daily et al (2010) and Sia (2010)'s assertion that institutions reputation has importance influence on student's education destination choices. Statistically, this was observed not to be significant. The study therefore concludes that, though institutional reputation is influential among institutional variables, foreign student tends to pay less attention to it when they consider macroeconomic and institutional variables jointly. This can be suggestive that, foreign students' consideration of macroeconomic variables supersedes institutional variables. This tends to corroborate with Mazzarol and Soutar (2002) who reported that, international students make country decision before deciding on an institution with that country.

A unit increase in advertisement by institutions resulted in a 0.39 reduction in the log-odds of foreign students demand for tertiary education. This unexpected outcome could be attributed to the strong influence of parents, peers and educational consultants in such education destination decisions as suggested by social capital/network theories. However, this was not

statistically significant. Implication is that, advertisement has no influence on foreign students demand for tertiary education considering both institutional and macroeconomic variables in Ghana.

A unit improvement in security was also observed to be associated with a 1.33 increase in the log-odds of foreign students demand for tertiary education. As previously suggested by Gray et al (2003) and Cubillo et al (2006), security measured in terms of political stability; freedom from danger, absence of racial or ethnic abuse, freedom from fear and anxiety; low crime rate etc. helps build country's image and augments institution's brand thus influencing foreign students purchase intentions. Statistically, this was observed to be significant at a 1% level. This is suggestive that, foreign students pay attention to security in tertiary education decision even when considering both institutional and macroeconomic variable in Ghana.

Also, a unit improvement in immigration procedures was observed to result in a 0.68 increase in the log-odds of foreign students demand for tertiary education. Statistically, this was observed to be significant at a 1% level. Implication is that, immigration procedures in Ghana is influential in foreign student's tertiary education demand decisions when considering both institutional and macroeconomic variables. This finding is consistent with Lomer (2018) who reported that, student mobility is easily influenced by migration policies and procedures.

Finally, model 3 was identified to be statistically significant with a $\text{Prob} > \chi^2 = 0.000$ and a LR $\chi^2(5)$ of 93.95, This is suggestive that one or more of the explanatory variables used in model 3 was important in predicting international education demand in Ghana. However, this model was only able to predict only 38% of the variations in foreign demand for education as presented by the model's pseudo R². Notwithstanding, model 3 had the lowest log likelihood and highest pseudo R² value when compared to that of model 1 and model 2. This is indicative

that, institutional and macroeconomic variables are jointly important in explaining foreign students demand for tertiary education in Ghana.

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CHAPTER FIVE

SUMMARY OF FINDING, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the findings of the study. It also attempts to offer policy recommendations in relation to the findings of the study.

5.1 Summary of finding

The study found that,

- Foreign students' enrollment in Ghana's universities is skewed towards male.
- Tertiary institutions in Ghana often attract relatively young people below the age of 35 years.
- Majority of foreign students pursuing tertiary education in Ghana originates from African countries predominantly Nigeria, Togo, Cote D'Ivoire, Angola, Benin and Congo.
- Majority of foreign students in the country pursue tertiary education either to enhance their career/employment prospects or gain applicable knowledge and hence attracted to computer-oriented, engineering-oriented and business administration undergraduate or masters programmes.
- All institutional variables used in the study were observed to impose the expected positive influence on the demand by international students for Ghana's universities except for location and advertisement/marketing strategy of institutions. Among the institutional variables used, only programme offered, institutional reputation and advertisement was found to significantly influence tertiary education demand by international students in Ghana.

- Amongst the macroeconomic variables used, only security and immigration process were identified to significantly influence international students demand for tertiary education in Ghana.
- Finally, the study found programmes offered, security and immigration procedures as the salient variables influencing international students' demand for tertiary education in Ghana when considering both institutional and macroeconomic variables.

5.2 Conclusions

The role of education as a significant service sector and an export revenue contributor has in contemporary times gained increased recognition. Owing to this, institutions and countries seeking to take advantage of their knowledge economy have consistently explored and prioritized related issues in education particularly those that influence inbound and outbound mobility of students in their country.

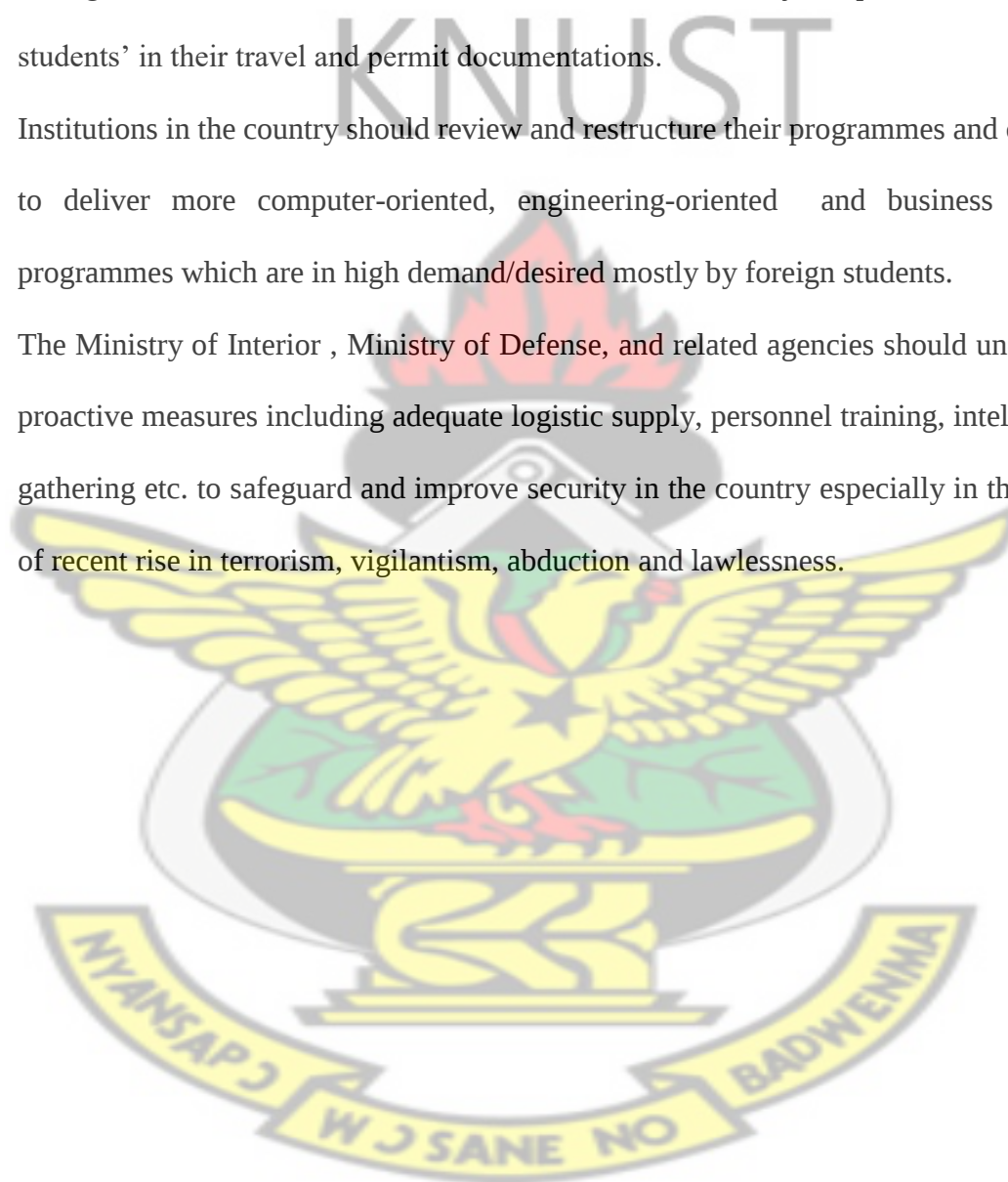
In Ghana however, priority has continually been devoted towards explaining outbound mobility of students even though institutions in the country also receive foreign students every academic year. It was therefore apt for a study to be conducted to assess the factors necessitating this inbound mobility of students into the country.

The logistic regression applied on the selected institutional and macroeconomic variables established that, the influence of macroeconomic variables on international student's education demand decisions outweighs that of institutional variables in Ghana. The study further found programme offered, institutional reputation and advertisement as significant institutional variables; and security and immigration procedures as the significant macroeconomic variables influencing international student's demand for tertiary education in the country.

5.3 Recommendations

Based on the findings, the following recommendations are suggested;

1. The Ghana Immigration Service (GIS) should be adequately resourced and motivated to carry out its mandate effectively.
2. Immigration officer's desk/office should be sited on university campuses to aid foreign students' in their travel and permit documentations.
3. Institutions in the country should review and restructure their programmes and courses to deliver more computer-oriented, engineering-oriented and business related programmes which are in high demand/desired mostly by foreign students.
4. The Ministry of Interior , Ministry of Defense, and related agencies should undertake proactive measures including adequate logistic supply, personnel training, intelligence gathering etc. to safeguard and improve security in the country especially in the wake of recent rise in terrorism, vigilantism, abduction and lawlessness.



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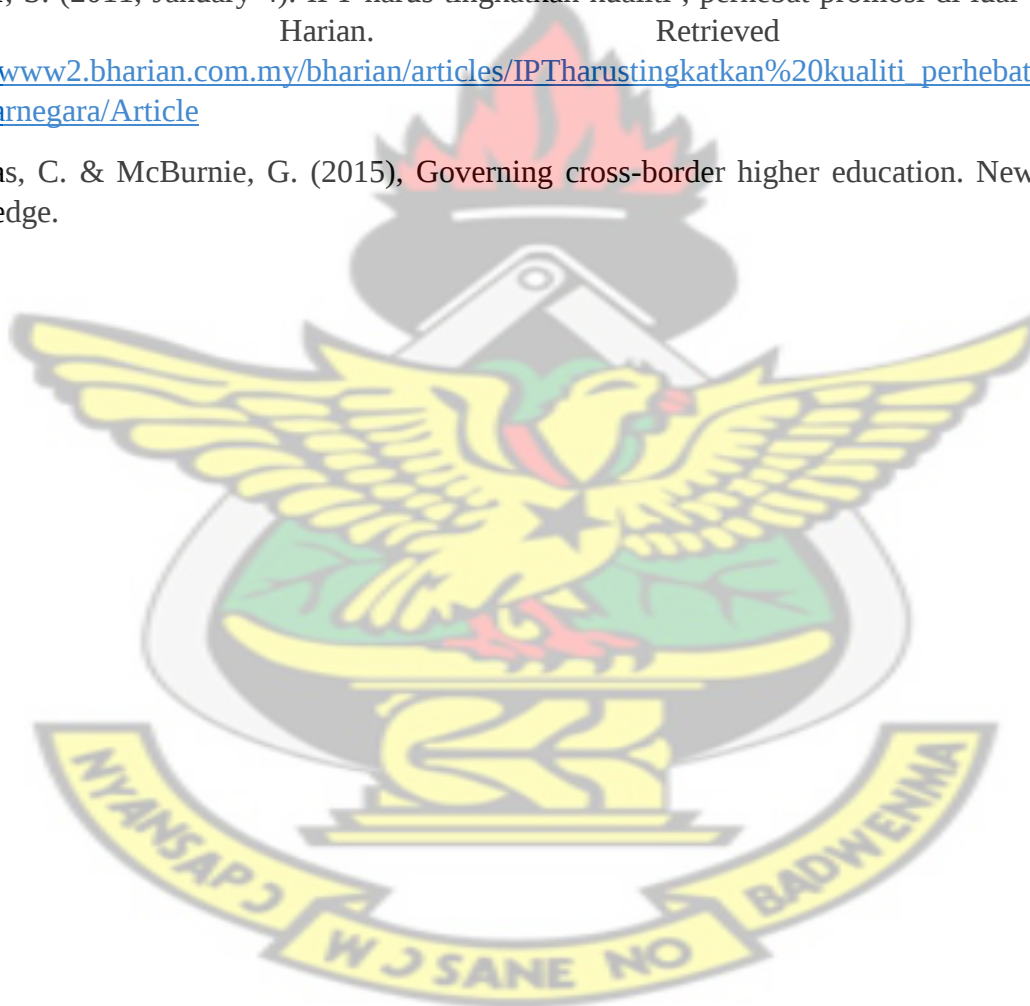
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APPENDIX

Survey Instrument@2018

Brief background of the study

This study aims at determining the elasticity/responsiveness of foreign students' demand for tertiary education in Ghana. The goal of the study is to establish the significant institutional and macroeconomic factors influencing foreign students demand in Ghana. The study additionally seeks to propose strategies to aid institutions in Ghana increase their market share of international/foreign students and enable them to generate adequate revenue for institutional and national development.

The study is purely academic-oriented, as such we would like to assure you that your responses would not be used for any other purpose other than those stated before. For the purposes of improving the quality of the study, we humbly request you to take your time to read and understand the items on this instrument before you respond to them. Objective responses offered will be highly appreciated.

Please read the instruction(s) under each section of the instrument to assist you in your responses.

Thank you so much for your willingness to participate in this study.

Questionnaire ID:

SECTION A: RESPONDENT'S INFORMATION

1. **Kindly indicate your country of origin/nationality.** a) Ghana { } b) Nigeria { } c) Cote D'Ivoire { }
d) Togo { } d) Benin { } e) Angola { } f) Other
2. **Kindly indicate your gender.** a) Male { } b) Female { } c) Other (Specify)
3. **Kindly indicate your age group?** a) 15-19 years { } b) 20-24 years { } c) 25-29 years { }
d) 30-34 years { } e) Above 34 years { }
4. **What is your programme of study?**
a) Information Technology/Computer Science/Computer Forensic/MIS/etc { }
b) Business Administration (Accounting/Management/HRM/Procurement/etc { }
c) Engineering (Telecom, Computer, Electronics)/Oil & Gas/ etc { }
d) Economic/Social Science/etc { }
e) MA/MSc/Mphil/Mtech/etc { }
f) DBA/PhD { }
g) Other (Specify)
5. **What is your level of study?** a) 100 { } b) 200 { } c) 300 { } d) 400 { }
e) Other (Specify)
6. **Kindly indicate your main motive for tertiary education.**
a) Knowledge acquisition { } b) Employment/career opportunities { } c) Social status { }
d) other

SECTION B: INSTITUTIONAL FACTORS

Kindly use a 4-point scale measuring from “1=not a priority” “2=least priority” 3=medium priority” and “4=high priority” to provide responses to the items in the Table below.

INSTITUTIONAL FACTORS IN DESTINATION & SOURCE COUNTRY

Kindly indicate the impact of the following institutional variables on your demand for tertiary education in Ghana	1	2	3	4
IF1. Fees charged (tuition & auxiliary charges, mode of payment) by institution(s) in Ghana	☐	☐	☐	☐
IF2. Programmes offered by institution(s) in Ghana	☐	☐	☐	☐
IF3. Reputation of institution(s) (faculty, assessments, certificate recognition) in Ghana	☐	☐	☐	☐
IF4. Teaching & learning facilities of institutions in Ghana	☐	☐	☐	☐
IF5. Nature of students support services of institution(s) in Ghana	☐	☐	☐	☐
IF6. Location of institution(s) in Ghana	☐	☐	☐	☐
IF7. Advertisement/marketing by institution(s) in Ghana	☐	☐	☐	☐

SECTION C: MACROECONOMIC FACTORS

Kindly use a 4-point scale measuring from “1=not a priority” “2=least priority” 3=medium priority” and “4=high priority” to provide responses to the items in the Table below.

MACROECONOMIC FACTORS IN DESTINATION & SOURCE COUNTRY

Kindly indicate the impact of the following macroeconomic variables on your demand for tertiary education in Ghana.	1	2	3	4
MF1. Security level (political stability, crime rate, fear, anxiety, abuse) in Ghana	☐	☐	☐	☐
MF2. Purchasing power parity (cost of living, inflation & exchange rate) in Ghana	☐	☐	☐	☐
MF3. Educational expenditure (government spending on education) in Ghana	☐	☐	☐	☐
MF4. Population size of people of tertiary age in Ghana	☐	☐	☐	☐
MF5. Immigration procedures/processes in Ghana	☐	☐	☐	☐