British Journal of Education, Society & Behavioural Science
15(1): 1-13, 2016, Article no.BJESBS.23891
ISSN: 2278-0998

SCIENCEDOMAIN ***international***
www.sciencedomain.org

An Investment Analysis of Private Hostel Business in Ghana Tertiary Institutions: A Case of Knust Campus

Lydia Asare-Kyire[1], William Ansah Appienti[1*], Anthony Kusi[2] and Abraham Osei[1]

[1]School of Management and Economics, University of Electronic Science and Technology of China (UESTC), No. 4 Section 2, North Jianshie Road, Chengdu, China.
[2]Department of Entrepreneurship and Finance, Kumasi Polytechnic, P.O.Box 854, Kumasi, Ghana.

Authors' contributions

This work was carried out in collaboration between all authors. Author LAK designed the study wrote the introduction and did all the necessary literature review. Author WAA collected all necessary information on methodology, designed and wrote the methodology, analysed the data and wrote the necessary findings. Authors AK and AO wrote the implications of the findings, the policy recommendation, conclusions and the references. All authors jointly read through the manuscript and made the necessary corrections and suggestions.

Article Information

DOI: 10.9734/BJESBS/2016/23891
Editor(s):
(1) Stan Weeber, Professor of Sociology, McNeese State University in Lake Charles, Louisiana, USA.
Reviewers:
(1) Ahmed Abdelraheem Farghaly, Sohag University, Egypt.
(2) Alonge O. Richard, School of Housing, Building and Planning, USM, Penang, Malaysia.
Complete Peer review History: http://sciencedomain.org/review-history/13607

Original Research Article

Received 28th December 2015
Accepted 22nd January 2016
Published 9th March 2016

ABSTRACT

The various educational reform programmes in recent times has led to an increase in enrolment of students in the major public and private tertiary institutions in the country with its resultant accommodation difficulties. Statistically, over 60 percent of students in most of the tertiary institutions are "non-resident. In responding to the accommodation problem and students demand for places of residence led to the springing up of hostels on and off the University campus.
The establishment of the private hostels, though very useful, requires huge amount of investment, hence investors need to have a fair idea of the returns to generate before committing their

**Corresponding author: E-mail: willanspienti@yahoo.co.uk;*

resources. The task before these researchers aims at undertaking the financial analysis of the private hostels in terms of: their financial viability; how sensitive these projects are to changes in the cost and benefit streams as well as project sustainability. Using a case study approach, both probability and non-probability sampling designs were employed. From the financial analysis, it was found out that using a discounting factor of 20 percent which is the going interest rate on loans by banks, none of the hostels under study was viable within a period of 30 years as their Benefit Cost Ratio's(BCR's) were less than one and their Net Present Value's(NPV's) were also negative. With regards to how sensitive the projects were, there was a further increase of 12 percent on their cost and benefit streams but not at the same time. On the issue of sustainability, the managers of the sampled private hostels revealed that, all the hostels had available funds to finance operational and daily expenses.

Keywords: Private hostels; university accommodation; investment analysis; Ghana Tertiary Institutions.

1. INTRODUCTION

The dream of most students to be in the public universities in Ghana at the expense of the private ones, is constantly putting pressure on the academic and residential facilities in the public universities [1]. Statistically, over 60 percent of students in the public tertiary institutions in Ghana are non-resident whiles those "lucky" residential students are put in four (4) in a room, meant for two (2) students.

The concept of "non-residence" as a category of students became a reality and was subsequently implemented by the Kwame Nkrumah University of Science and Technology (KNUST) authorities when it became obvious that the halls of residence on campus could not accommodate the ever-increasing student population [2]. KNUST then adopted a residential policy referred to as the In-Out-Out-Out Policy, which was to make residential accommodation available to all fresher's. That is, all first year students are expected to be accommodated by the University while continuing students look out for accommodation themselves outside the University halls of residence.

In a bid to cash in on the situation, several private hostels sprung up around the main campuses. As private investors, their drive was the huge profit accruing from the venture, leading to overcharging and operating under poor conditions, all in the name of cutting down operational costs [3,4].

Addressing the problem of unfair business practices of these landlords have led the university authorities considering partnering with some private developers to come out with a jointly own hostel, so as to regulate the activities as well as serving as an additional source of generating revenue.

This research work, as part of the fact finding mission on housing, aims at assessing the possibility of the joint venture surviving, by undertaking financial analysis of the private hostels in terms of: their financial viability; how sensitive these project are to changes in both the cost (increases in tariffs and a reduction in the hostel student population) and benefit streams (increases in the hostel fees or a reduction in the tariffs); and project sustainability, so as to offer the necessary recommendations for the parties involve.

2. THEORETICAL BACKGROUND

2.1 Reasons for Private Sector Participation (PSP)

The reasons for PSP vary from country to country. One reason however stands out: State Owned Enterprises (SOEs) have generally posted disappointing results. In bringing about sustainable improvements in enterprise performance, many governments today require Private Sector Participation as a major means in accomplishing polices [5].

Another important reason for the involvement of the Private Sector is that most governments find themselves facing deep budget deficits and public finance crisis [6,7]. The State no longer has the financial resources to provide the capital increases necessary for the development of State Owned Enterprises [8]. Hence, the move to involve the Private Sector in the provision of some resources that involve huge capital [9].

A typical example is the private sector participation in Residential Accommodation for tertiary students in Ghana.

It is contended that business opportunities exist for private providers of higher education, and it is their job to find opportunities to create value of the business required to bring them to life [10].

Rapid changes in the international economy have also helped promote private sector participation [11]. Globalization of the economy, accelerated technological innovation and growing integration of markets compel businesses to adopt highly flexible strategies and continuously adjust them to changing circumstances [12]. This may, among other things, require the formation of alliances with foreign partners or even through cross-shareholdings.

3. CONCEPTUAL FRAMEWORK

This framework depicts the three main actors (students and their parents/ guardians, the public sector and the private sector) involved in the provision of services in the educational sector. It shows that none of them can shoulder the cost of enhancing accommodation facilities in tertiary education [13]. Hence, Participation /Partnership are needed to improve the level of accommodation in the tertiary educational sector (Government of Ghana Education Strategic Plan 2003 – 2015 volume 1&II; [14-16]. The improved accommodation facilities will be a catalyst to increased access in tertiary education.

3.1 Analytical Framework

3.1.1 Financial analysis

The financial analysis of a project encompasses the financial effects of a proposed project on each of its various participants. With this research work, the participants of the project (residential accommodation) will include the private sector (producers or providers of hostels), students and the University. The financial analysis will inform the researchers about the projects financial efficiency, incentives, and how much beneficiaries participating in the project will have to live on. Cost–Benefit analysis, sensitivity analysis, sustainability analysis, distributive and equity impact analysis are all instruments that can be used to undertake the financial analysis of a project [17].

3.2 Scope and Methodology

Geographically, the paper covered all registered private hostels on and off KNUST campus within a four (4) kilometres radius from the commercial area on KNUST campus. Data on students' enrolment and residential status from 2000/2001 academic year to 2013/2014 academic year was used. KNUST was selected as:

i. It was a tertiary institution
ii. It had embarked on a residential policy (In-Out-Out-Out policy) where only freshers were being accommodated by the University with continuing students finding accommodation elsewhere mostly in private hostels
iii. The strategy of the University is to involve the private sector in the provision of residential accommodation for its students
iv. There is the upsurge of private hostels on and off the University Campus.

We used the Case Study Approach as it provided insight into and information on the activities of private hostel accommodation on and off KNUST campus. Both Probability and Non-Probability sampling designs were employed. Under probability sampling techniques, the stratified sampling method and simple random sampling technique were used. With the Non-probability sampling the purposive sampling technique was used. With stratified sampling, the sample population was divided into a number of strata based on one or more criteria and a sample was drawn from each stratum. This was used to stratify the hostels into classes; 1st, 2nd and 3rd classes based on the facilities provided and the rents charged by the various hostels (Table 1.1).

With each class, the minimum amount describes the situation where there is more than one student but not exceeding four (4) students in a room with the maximum amount indicating where there is only one (1) student in a room. After stratifying the hostels into classes, the purposive sampling was used. With purposive sampling technique, we purposely chose subjects who, were thought to be relevant to the research topic. This technique was therefore used in determining hostels and University authorities to be interviewed. The University authorities interviewed were; the Office of the Registrar, Office of the Dean of Students, Development Office and the Planning Unit.

The simple random sampling was used in selecting students from the various classes of hostels to be interviewed. The simple random sampling gave all students housed in each hostel surveyed an equal chance to be interviewed. This technique was also used in selecting some lecturers and SRC members to be interviewed.

A 95 per cent confidence interval was used. The quantitative and qualitative methods were used for the determination of hostels. Only the quantitative method was applied in determining the sample size of non-resident students to be interviewed.

The formula $n = \frac{N}{1 + N(\alpha)^2}$ was used in determining the sample size for the study;

Where: n = Sample size N = Sample population α = confidence level

The sample population of hostels registered with the Office of the Dean of Students and located within four kilometres from the commercial area of KNUST was fifty (50). Through the qualitative method the hostels were stratified into classes by considering the facilities provided and rents charged as indicated in Table 1.1. The sample size of the various classes was determined using the above formula. This was followed by the determination of the sample size of non-resident students. The total population of non-resident students for the 2013/2014 academic year was 10107 (Planning Unit, KNUST). All non-resident students were assumed to be residing in the various hostels understudy. Using the above formula the sample size for non-resident students was 385. After determining the sampling sizes of both the hostels and the students, proportion was used to determine the total number of students to be interviewed in each class of hostel. After which the ratio of each class to the number of students apportioned was done to get total number of students to be interviewed in each hostel as indicated in Table 1.2.

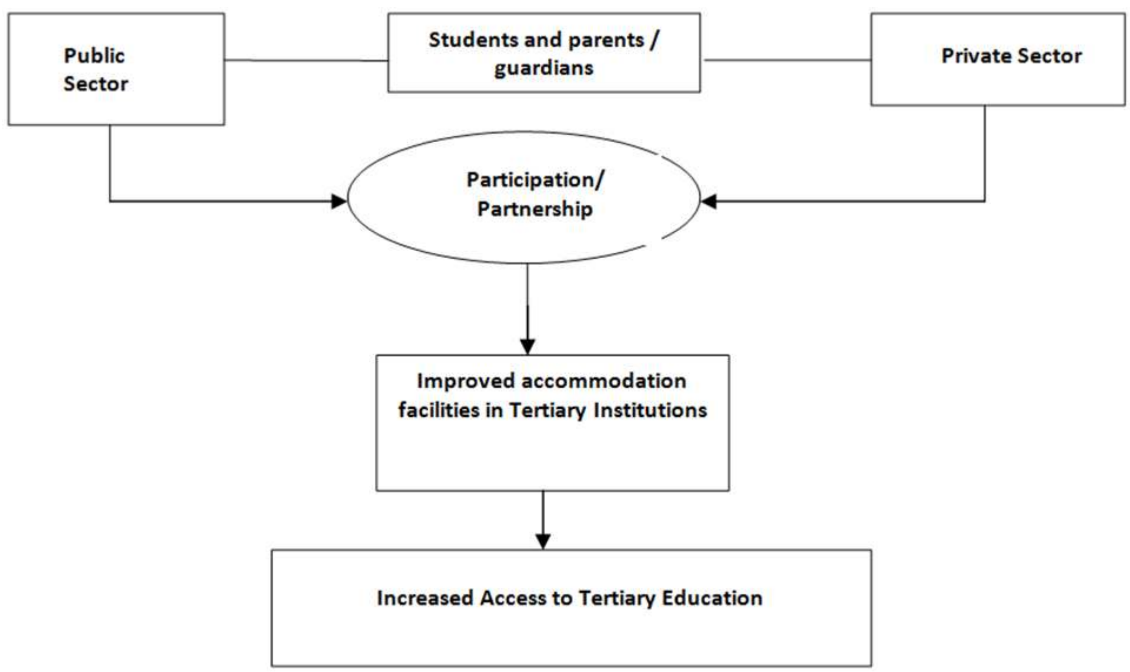

Fig. 1. Partnership in the provision of accommodation facilities in tertiary education
Source: Author's construct, 2015

Table 1.1. Classes of hostels, the facilities available and the rents charged

Hostels	Facilities	Rent charged (GH ¢)
1st Class	Bed and mattress for each student Study desks and chairs in the rooms Wardrobes, ceiling fans and Air conditioners in the rooms Furnished common kitchens Common Reading room Ensuite bathroom and water closet facilities Electricity and water supplied from public mains A mechanised borehole to supplement water supply. Common television room connected to multi choice decoders (DSTV) Internet connected to the rooms Restaurant and Casino Shuttle Tennis and basket ball courts Rent includes all utility bills	600-2400
2nd Class	Bed and mattress for each students. Study desk and chairs in the rooms In-built wardrobes and ceiling fans in the rooms Common reading rooms Furnished common kitchens Shared bathroom and water closet facilities Electricity and water supplied from public mains A mechanised borehole to supplement water supply Common television room connected to Multi-choice Decoders (DSTV) Rents includes all utility bills	450-1800
3rd Class	Bed and mattress for each student, Study desks and chairs in the rooms Shared bathroom and water closet facilities Furnished common kitchen A mechanised borehole to supplement water supply Electricity and water supplied from the public mains Rent includes utility bills.	300-1200

Source: Author's construct 2015

Table 1.2. Results of the sample size determination

Hostels	Sample population	Sample size	Number of students per class	Percentages of sampled student per hostel
1st class	11	10	88	22.9
2nd class	16	15	120	31.9
3rd class	23	22	177	46.0
Total	50	48	385	100.0

Source: Authors own construct 2015

4. ANALYSIS AND DISCUSSION

4.1 Financial Analysis

4.1.1 Financial viability of the hostels

There are three basic methods for calculating and analyzing the financial viability of a project and these are the Benefit-Cost Ratio (BCR), Net Present Value (NPV) and the Internal Rate of Return (IRR). Since the various hostels are privately owned, it was worth undertaking a financial analysis to ascertain the financial viability or otherwise of these hostels. Two discounting factors, that is, 12 and 20 per cents were used. The basis for the usage of the 12 per cent was because it is the discounting factor approved by the World Bank and United Nations to be used for their projects. But then to localize the whole analysis, the prevailing interest rate, thus 20 per cent, was also used so that the viability of the projects at the going interest rates on loans could be assessed [18]. All amounts are quoted in Ghana Cedi.

The following assumptions were made;

i. Project life was assumed to be 30 years.
ii. That all hostels analyzed were fully occupied.
iii. That the source of capital of the captured hostels were through loans which attracted an interest of 20 percent
iv. That interest rate of 20 percent will remain constant throughout the project period
v. That variable cost for the various hostels will be constant throughout the project period
vi. That total benefits would remain unchanged throughout the period.
vii. That an increase in inflation of twelve (12) per cent will not change within the thirty year period. This was used for the sensitivity analysis.

As can be observed from Table 1.3, financial analyses of all the private hostels based on a discounting factor of 20 per cent (the going interest rate of banks on loans) the projects were found not to be viable. The calculation was done for a period of 30 years which was assumed to be the project life. This is so because the various Benefit Cost Ratios (BCR) of all the hostels were found to be less than one (1) and when the BCR of a project is less than one (1), then that project is said not to be worth investing in but when the BCR is greater than one then there is every reason to pump money into that project. For instance the BCR for Shalom Hostel was 0.739, Outlook hostel (0.76) and Ghana Hostels (0.74) and Crystal Rose (0.645).

The assertion above was proved right when the figures for Net Present Value (NPV) in both were analysed. At a discounting factor of 20 per cent all hostels had negative NPVs, that is -100, 564, -32,639, -516,442 and -940,997 for Shalom, Outlook, Ghana and Crystal Rose Hostels respectively. The averages of both the BCR (0.721) and the NPV (-373,946.75) proved that the projects were not viable at the 20 percent discount rate.

With a discounting factor of 12 percent, Shalom, Ghana Hostels and Crystal Rose Hostels become viable, obtaining a BCR of 1.127, 1.047 and 1.033 respectively. Their NPV's were also positive as stated in Table 1.4. However Outlook Hostel was still not viable as its BCR was less than one (0.927) with a negative NPV (-12,194). But on the average, the BCRs and NPVs of all the hostels stated in Table 1.4 proved they were viable. This indicates that, the economic environment in the country, even though has been getting better, is still not very conducive to encourage private investment in University accommodation provision. This is basically due to the high interest rates being charged by the banks in Ghana.

Table 1.3. Financial viability of the hostels with 20 per cent discount rate

Name of hostel	Discount rates	Benefit Cost Ratio (BCR)	Net Present Value (NPV)	Extent of viability
H A	20	0.739	-83,048	Not Viable
H B	20	0.76	-30,122	Not Viable
H C	20	0.645	-940,997	Not Viable
H D	20	0.74	-441,620	Not Viable
Averages		0.721	-373,946.75	Not Viable

Source: Researchers field survey (2015)

Table 1.4. Financial viability of the hostels with 12 per cent discount rate

Name of hostel	Discount rate	Benefit-Cost Ratio (BCR)	Net Present Value (NPV)	Extent of viability
H A	12	1.127	41,705	Viable
H B	12	0.927	-12,194	Not Viable
H C	12	1.033	88,924	Viable
H D	12	1.047	91,268	Viable
Averages		1.0335	52,425.75	Viable

Source: Researchers survey (2015)

A further reduction in interest rates needs to be done for the private sector to be encouraged to perform its function as the engine of growth through the key policies for the private sector. Again, once the BCR and the NPV points to the fact that the project is viable or otherwise, the result of the IRR would not change the story. Therefore, only the BCR and the NPV analysis were undertaken considering the financial viability of the hostels in Tables 1.3 and 1.4.

4.1.2 The payback period

Payback can be explained as the period, usually expressed in years it takes for the projects cash inflows to recoup the initial investment (Lucey, 1996). The usual decision is to accept the project with the shortest payback period. From Table 1.5, considering the initial investments and cash flows of the various hostels, it would take Shalom Hostel seven years, Outlook hostel four years, Crystal Rose hostel eight years and Ghana hostels six years to recoup their initial investments. This implies that among the hostels, Outlook hostel is worth investing in, followed by Ghana hostel, Shalom and Crystal Rose hostels in terms of students' accommodation. The average pay back period for the captured hostels is six years. It is expected that on the average the hostels should be able to break even after six years.

4.2 Sensitivity Analysis

Every project is sensitive to changes in the economic indices of a country. Also costs and benefits of a project are always subject to inflation within the country [19]. Therefore, it became imperative to analyse the viability of these hostel projects after changes have occurred in the cost and benefit streams. Here it was assumed that both the cost and benefit streams would increase by 12 per cent each but not at the same time. With the sensitivity analysis of the hostels, an increase of 12 per cent on total cost on both 12 per cent and 20 per cent discounting factors worsened the situation, thus the projects were still not worth their investments as shown below (Tables 1.6 and 1.7)

With an increase of 12 per cent on costs and a 12 per cent discounting factor, except Shalom hostel which recorded a BCR of more than one and a positive NPV, the rest of the hostels were not viable. An indication of the effect interest rates can have on the success of projects, which, all things being equal, could be used as channels/vehicles of growth (Table 1.8).

But the situation seemed different with an increase of 12 per cent in the benefit stream at a discounting factor of 12 per cent. Here, all the selected hostel projects became viable as shown in Table 1.9

This indicates that, aside a reduction of interest rates by the government, only an increase in rent and for that matter benefits would virtually make private involvement in University hostel accommodation provision viable.

But an increase in rent is going to put pressure on the already complaining students who agitate for a reduction in rents. The cost implication might be for some parents to forgo an ongoing project in order to meet the rents of hostels, students "pocket money" to meet their daily expenses and other monies for teaching and learning materials may have to be reduced by parents which in the long run will affect the academic performance of the student. With an increase in rents, students who cannot afford might go back to the halls and "perch", worsening the accommodation problem on KNUST campus. When this happens, the private hostels will lose their importance of easing tertiary accommodation problems by absorbing excess students without accommodation on Campus. It also implies that, the University cannot achieve one of its strategic objectives of improving its physical infrastructure and facilities by increasing its residential facilities with enhanced participation of the private sector as stated in (PLAN 2K14 2005 of KNUST) [20].

Considering the sensitivity analysis, it is only when rents are increased by 12 per cent with an interest rate of 12 per cent that the providers can recover the project costs from projects benefits, which will put a burden on the users of the facilities. The question is how many students can afford that? The only financial incentive necessary to ensure continuous patronage of the hostels is to reduce rents as suggested by 60 per cent of the students surveyed. So how do the providers ensure cost recovery and at the same time embark on financial incentives?

Table 1.5. Payback periods for hostels captured

	H A			H B			H C			H D		
	Initial investment GH cedi	**Cash flow GH cedi**	**Cumulative cash flow GH cedi**	**Initial investment GH cedi**	**Cash flow GH cedi**	**Cumulative cash flow GH cedi**	**Initial investment GH cedi**	**Year**	**Cumulative cash flow GH cedi**	**Initial investment GH cedi**	**Cash flow GH cedi**	**Cumulative cash flow GH cedi**
0	284,000	-	-	59,000	-	-	2,600,000	-	-	1,300,000	-	-
1.	-	46,000	46,000	-	19,200	19,200	-	344,000	344,000	-	253,800	253,800
2.	-	46,000	92,000	-	19,200	38,400	-	344,000	688,000	-	253,800	507,600
3.	-	46,000	138,000	-	19,200	57,600	-	344,000	1,032,000	-	253,800	761,400
4.	-	46,000	184,000	-	19,200	76,800	-	344,000	1,376,000	-	253,800	1,015,200
5.	-	46,000	230,000	-	-	-	-	344,000	1,720,000	-	253,800	1,269,000
6.	-	46,000	276,000	-	-	-	-	344,000	2,064,000	-	253,800	1,522,800
7.												
8.	-	46,000	322,000	-	-	-	-	344,000	2,408,000	-	-	-
9.	-	-	-	-	-	-	-	344,000	2,752,000	-	-	-

Source: Researchers survey (2015)

Table 1.6. Sensitivity analysis with 12 per cent increases on cost stream at 20 per cent

Name of hostel	Discount rate per cent	Benefit Cost Ratio (BCR) per cent	Net Present Value (NPV)	Extent of viability
H A	20	0.7	-120,497	Not Viable
H B	20	0.679	-45,208	Not Viable
H C	20	0.576	-1,259,450	Not Viable
H D	20	0.66	-646,255	Not Viable

Source: Researchers survey (2015)

Table 1.7. Sensitivity analysis with 12 per cent increase on benefit stream at 20 per cent)

Name of hostel	Discount rate per cent	Benefit Cost Ratio (BCR)	Net Present Value (NPV)	Extent of viability
H A	20	0.822	-55,563	Not viable
H B	20	0.85	-18,650	Not viable
H C	20	0.729	-735,464	Not viable
H D	20	0.829	-289,980	No viable

Source: Researchers survey (2015)

Table 1.8. Sensitivity analysis with 12 per cent increase on cost stream at 12 per cent

Name of hostel	Discount rate per cent	BCR	NPV	Extent of viability
H A	12	1.005	2,163	Viable
H B	12	0.83	-32,251	Not viable
H C	12	0.93	-233,535	Not viable
H D	12	0.83	-143,560	Not viable

Source: Researchers survey (2015)

Table 1.9. 12 percent increase on 12 per cent benefit stream

Name of hostel	Discount rate percent	BCR	NPV	Extent of viability
H A	12	1.26	86,252	Viable
H B	12	1.038	6,399	Viable
H C	12	1.157	422,054	Viable
H D	12	1.17	337,048	Viable

Source: researchers survey (2015)

4.3 Sustainability Analysis

As to the financial sustainability of the hostels, all the hostels had available funds, which they kept as impress to finance operational and daily expenses [21]. For major expenditures like provision of boreholes and stand-by generators to supplement water and electricity provided by the nation, only the 1st and 2nd class hostels had adequate funds to finance such projects. With the investment cost, the 1st and 2nd class hostels had available funds to cover that through bank loans but the third class hostels did not. Most of the third class hostels were doing incremental building. That is, they built part of the structure through their own savings, rented it out to students and then used the rent received to build the next phase. It should be noted that all the 1st class hostels as well as most of the 2nd class hostels are owned by either already established business people or institutions and as such they are able to meet the requirements of the banks for the sourcing of loans.

From the analysis, one of the factors determining rent levels was the interest rate on loans that were taken by the private hostel providers. This manifests itself through the various rents charged. With the first class hostels the highest charge is 2,400 GH cedi while the minimum is 650 GH cedi per student per academic year. The second class hostels charge 450 GH cedi on the average per student per academic year with Third class charging 250 GH cedi on the average per student per academic year. Hence, only students who can afford can demand the services of the first and second class hostels where the facilities are much better than the third class hostels.

4.4 Distributive and Equity Impact Analysis

The distributive and equity impact analysis was used to assess the benefits of the hostels to students, the University, and the community in which the hostels are established. From the survey, 57 percent of the students admitted that the hostels have been of immense help to them as their operations had reduced congestion in the halls and were of the view that hostel operators should be encouraged to build more thereby helping to mitigate the effects and impact of the accommodation problem on students and the University at large. However, 43 per cent of the students had the view that, though the private hostels are playing their role, they were exploiting them through expensive rents which in most cases was becoming a burden on their guardians and parents.

To the University authorities, by accommodating about two-thirds ($2/3^{rd}$) of the student population of KNUST, the private hostels had enabled the University to admit more students. For example student enrolment increased by more than 100per cent between 2005/2006 academic year and 2013/2014 academic years. According to the Office of the Registrar, the University intends decoupling residential accommodation from admissions and that those halls of residence might be privatized. Admission then will take into consideration available infrastructure such as lecture halls, laboratories, among others and not accommodation.

As to the impact on the community, it was realized that only 5 per cent of the employers working in private hostels were not residents of the community. They were mostly the managers and a few front desk officers. The rest (95 per cent), were cleaners, security men and front desk officers. There is also the springing-up of small shops which is manned by residents in the community to serve the students. The hostels were therefore serving as a source of employment to the community.

5. KEY FINDINGS

5.1 Financial Viability of the Hostels

From the financial analysis, using a discounting factor of 20 per cent which is the going interest rate on loans by banks, none of the hostels understudy was viable within a period of 30 years as their BCR's were less than one and their NPV's were also negative. It was when the discounting factor was reduced to 12 per cent that three of the hostels (Shalom, Crystal Rose and Ghana Hostels) became worthy of investing in whilst Outlook hostel was not viable.

Interest rate on loans is one of the key determinants of growth and expansion in the Private Sector. A further reduction in interest rate needs to be done by the Government for private hostel providers to provide their complementary role to the University in terms of accommodation provision for the University to achieve its strategic objective stated in the corporate strategic Plan (PLAN2K14) [20]. Beside the impact on the University, a reduction in interest rate is necessary if the Private Sector is expected to perform its function as the engine of growth stated in the GPRS II. But then it has to be said that, market forces place a major role in the determination of the interest rates on loans and so the call on the government is well placed.

5.2 Sensitivity Analysis

With regards to how sensitive the project were, there was a further increase of 12 percent on their cost and benefit streams but not at the same time. Still using the discounting factor of 20 percent, none of them proved worthy investing in. With 12 percent increase on the cost stream using 12 percent discounting factor, only one (1) – Shalom hostel-was viable, the rest were not viable. However, with 12 percent increase on the benefit stream using a 12 percent discounting factor, all the hostels became viable. This indicates the extent of how sensitive the hostels are especially to interest rate. It also indicates that aside a reduction of interest rates, an increase in rent and for that matter benefit would make private involvement in University hostel accommodation provision viable.

5.3 Implication

The implication would be that, the plight of the already complaining students who agitate for a reduction in rents would be worsened. Students might go back to the already congested halls on campus and "perch". Private Hostels will then lose their importance of easing tertiary accommodation problems on University Campus. The cost implications of an increased rent on students would be forgo part of their pocket money or will not be able to demand for the necessary teaching and learning materials to enhance their academic work. Parents might suspend project to be able to meet the increased rent. If students are not able to patronize the services of private hostels due to high rents, then the strategic objective of increasing the residential facilities with enhanced participation of the Private Sector by the University cannot be achieved.

Aside easing the accommodation problem the private hostels are making it possible for the University to increase students' enrolment. If by any means, such as an increase in rents and high interest rate increasing their total cost and crippling the Private Sector rending it not viable, then the University cannot enhance manpower training, research and innovation which are key determinants of economic growth and development.

5.4 Sustainability Analysis

On sustainability factor, the managers of the sampled private hostels revealed that, all the hostels had available funds to finance operational and daily expenses. It was for major expenditures like extra cost on the structures that the 3rd class hostels had no available funds. They were more into incremental building where they built part of the structure through their own savings, rent that part out and use the rent received to continue the next phase.

The first and second class hostels have the capacity to ensure future structural maintenance and improvement in facilities in these hostels. The hostels will be able to survive their project life span of 30 years. On the other hand the third class hostels are likely to experience deterioration in facilities and the structures in general due to inadequacies of funds and in the long run collapse.

6. RECOMMENDATIONS

6.1 Policy Recommendations

From the discussion so far, the following recommendations were made.

6.1.1 Reduction in interest rates

Interest rates determine the viability of the projects. The government could consult with domestic financial institutions to help reduce the interest rates on loans for the good of all the parties. It is therefore, incumbent on the government to implement prudent fiscal and monetary policies that would result in a further reduction of the existing interest rates.

6.1.2 Providing comprehensive policy guidelines

The University is in the process of developing a policy to guide the operation of hostel business on and off campus. It is recommended that, the authority in-charge should speed up the process and make the policy operational within the next two years. Also, the policy should be made as comprehensive as possible and should not fall short with respect to issues on contractual arrangements, standards of rooms, facilities and rent. The policy should possess a monitoring and evaluation mechanism and structure so as to deal with any form of anomaly and exploitation of students. This will be very appropriate in tackling the issue of poor standards of facilities in some of these private hostels as identified from the students.

6.1.3 Formalization and validation or certification of hostels

The Ghana Tourist Board, Kumasi Metropolitan Assembly, Ghana Fire Service and other related institutions should ensure the formalization, validation and certification of hostels to make sure that hostel providers meet accepted facility standards. They should also spell out sanctions and if possible ban those providers who do not meet the required standard without any form of compromises. In view of this the Ghana Tourist Board and the Metro Planning Community should undertake regular inspections at least once a semester to ensure safety and sanity in these hostels.

6.1.4 Improve relationship among stakeholders

The sustainability of the hostel business is dependent on a good mutual and beneficial relationship among stakeholders. Given that there is a direct but weak relationship existing between the university and the hostel providers calls for conscious effort on the two to collaborate and intensify roles in the process of providing students accommodation for their common benefit. The university should institute and formalise regular interface with hostel providers. Quarterly general meetings should be held to discuss issues of mutual interest regarding the accommodation of students.

6.1.5 Providing additional accommodation facilities

With the current percentage increase (more then 100 percent) in the past 14 years, in student enrolment, there is the need to provide additional accommodation facilities to cater for any expected increase in students' numbers in the long term. In this vein the University should create an enabling environment by removing the bottlenecks involved in land acquisition. By this the University authorities should speed up the processing of documents for granting building permit to prospective investors. Where hostels are operating on BOT terms the number of years for operation should not be less than 30 years as it is expected that, the private hostel providers would have recouped their investments. This will encourage a lot of private investors to establish hostels on KNUST campus to ease any future accommodation problem.

The University should also rely on Internally Generated Funds (IGF) to build hostels to meet any expected increase in student enrolment in the long term. The Government should also give out flexible loans to private investors who are into hostel business in the medium term.

6.1.6 Affordable rents

In assessing the affordability of hostels it was revealed that rents charged were too high for most students which affected them and their parents. In this vein, the University in consultation with the Private Providers' Association and through dialogue should fix rents within affordable ranges between 200 -800 Ghana Cedi for all hostels per year per student. This will place rents in the means of both the rich and the poor. In the case of students who cannot pay rents upfront, the University should dialogue with the providers for such students to pay rents in instalments but should put up mechanisms such as an undertaken from the university binding students to fulfil their obligations to their landlords. By so doing the risk involved with part payments such as defaults would be minimized.

6.1.7 Private partnership with university authorities

It is recommended that the University accommodation office operates a scheme whereby properties in the private sector are managed on behalf of owners. The university accommodation office therefore undertakes owner property registration and accreditation.

With these arrangements, students will deal directly with the University and the University, directly with the private hostel providers through the University's accommodation office. Rents are controlled within certain ranges by the accommodation office for landlords considering the property offered. Rent would be guaranteed and owners are paid in advance through the University's accommodation office.

7. CONCLUSION

Tertiary education in Ghana has come to a point where it has become necessary for the Universities, Private Sector and beneficiaries (students and parents or guardians) to partner with the Government through cost sharing in the provision of services especially of students' residential facilities. The residential Policy (In-Out–Out- Out) of KNUST consider only fresher for residential accommodation with continuing students becoming non-resident. The private sector responding to students demand for accommodation established private hostels on and off KNUST Campus.

The challenge however has been high interest rates acquired by hostel providers whose effect on private sector accommodation provision is less viable and less sustainable. The standards of most hostels in terms of facilities provided have been negatively affected in this regard. This is reflected in the cost per unit (rent) of their services and facilities provided which is becoming a burden for the average student and their parents or guardian and a matter of concern to the general public.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Hans Johnson. Higher education in California New Goals for the Master Plan; 2015. Available:http://www.ppic.org/main/publication.asp
2. Adu-Gyamfi S, Brenya E, Lamptey Eileen EL. Accommodation reforms and its effects

on students: A focus on Kwame Nkrumah University of Science and Technology from 1960-2013; 2014.

3. Bondinuba FK, Nimako SG, Karley NK. Developing student housing quality scale in higher institutions of learning: A factor analysis approach. Hindawi Publishing Corporation Urban Studies Research 2013;2013:11. Article ID 383109. Available:http://dx.doi.org/10.1155/2013/383109
4. Bondinuba FK, Nimako SG. An empirical evaluation of student accommodation quality in higher education. European Journal of Business and Social Sciences. 2013;1(12):164-177.
5. Dennis A Rondinelli. Partnering for development: Government Private-Sector Cooperation in Service Provision; 2002.
6. Prasad N. Social policies and private sector participation in water supply: beyond regulation New York: Palgrave Macmillan. 2008;237. ISBN: 9780230520820
7. Prasad N. Current issues in Private sector participation (PSP) in water Services United Nations Research Institute for Social Development (UNRISD); 2006.
8. Appiah BK. Promoting public-private partnership for the development of small scale industries Ghana; 2002.
9. Johnson BD. Cost sharing in higher education: Tuition, financial assistance, and accessibility in comparative perspective New York; 2003.
10. Justin B. University of the future. A thousand year old industry on the cusp of profound change; 2012.
11. Dinye RD. Economic of private sector participation in solid waste management. Centre for Settlement Studies, Institute of Human Settlement Research (14SR), Kwame Nkrumah University of Science and Technology, Kumasi Ghana; 2006.
12. Graeme AH, Carsten G. Public-Private partnerships: An international performance review public administration review. 2007;67(3):545–558.
13. Atuahene F. A policy analysis of the financing of tertiary education institutions in Ghana: An assessment of the objectives and the impact of the Ghana education trust fund. A dissertation presented to the faculty of the College of Education of Ohio University In partial fulfillment of the requirements for the degree Doctor of Philosophy; 2006.
14. Government of Ghana: Education strategic plan 2003 – 2015, Volume I, Policies, Targets and Strategies. Ministry of Education, Accra; 2003.
15. Government of Ghana (2003): Education Strategic Plan 2003-2015. Ministry of Education, Volumes II. ESP Work programme Ghana
16. Ishengoma MJ. Cost sharing and participation in higher education in Sub Saharan Africa: The case of Tanzania. Paper present at the UNESCO Forum on Higher Education, Paris; 2004.
17. Asian Development Bank, A Practical Guide Cost-benefit analysis for development: A practical guide. Mandaluyong City, Philippines: Asian Development Bank; 2013. ISBN 978-92-9092-957-4 (Print), 978-92-9092-958-1 (PDF).
18. Bolt K, Ruta G, Sarraf M. Estimating the Cost of Environmental Degradation: A Training Manual in English, French and Arabic. Environment Department Papers, World Bank, Washington, DC; 2005. Available:www.worldbank.org
19. Brent R. Applied cost−benefit analysis. Cheltenham; 2006.
20. KNUST: Corporate Strategic Plan, 2005 – 2014 (PLAN2KI4), Kwame Nkrumah University of Science and Technology, Kumasi-Ghana; 2005.
21. Carson RT. Contingent valuation: A comprehensive bibliography and history, Cheltenham, UK and Northampton, MA: Edward Elgar; 2003.

© 2016 Asare-Kyire et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/13607