Enhancing Student Housing Accessibility and Affordability: A Comprehensive Analysis of Private Accommodations at the University of Sri Jayewardenepura

K G P K Weerakoon[a]* Nilantha Randeniya[b] and Thumul Wickramarachchi[c]

[ab]*Department of Estate Management and Valuation, Univeristy of Sri Jayawadhanapura, Sri Lanka*
[c]*Faculty of Engineering, University of Moratuwa, Sri Lanka.*

Abstract

The fundamental right to education drives students across the globe to seek higher education opportunities, often necessitating relocations within their own country or abroad. In the context of Sri Lanka, the higher education gross enrolment rate has steadily increased, currently standing at 19.8%. However, the capacity of the nation's universities to offer on-campus housing falls short in accommodating the surging student population. Consequently, there has been a growing demand for private student housing, met primarily by private housing providers. At the University of Sri Jayewardenepura, a significant proportion, approximately 60% of undergraduate students, face the challenge of lacking access to on-campus dormitory facilities, making private housing companies a potentially pivotal solution. However, a critical gap exists in the legal framework regulating student private housing, forcing students to seek accommodation in hotels. When selecting private housing, students take into account multifaceted factors including location, proximity to the educational institution, safety, amenities, and the degree of personal autonomy they can enjoy. This research endeavours to develop an invaluable decision-making tool to empower students in making informed choices regarding private accommodations. Given that a substantial portion of students originates from rural areas where daily commutes to the university are impractical, student housing assumes paramount significance in their pursuit of higher education. This research project advocates for institutional guidance in the selection of private housing, a move that would substantially benefit students grappling with the challenge of securing suitable accommodations within limited timeframes. The study's findings hold the potential to significantly improve the educational journey for aspiring students in Sri Lanka, thereby enhancing accessibility and equity in higher education.

Keywords: Private Student Accommodation, Rental values, University Accommodation, Sri Lankan Universities, Student Housing Selection

Introduction

Access to education is an inalienable right for students across the globe, often motivating them to embark on educational journeys that involve relocating from their home regions to urban centers in pursuit of higher learning. Despite the worldwide surge in higher education enrollment, Sri Lanka's gross enrolment rate for tertiary education remains at a modest 19.8%. This growing influx of university students places significant demands on governmental resources, spurring a parallel demand for private student housing solutions. Within the hallowed halls of the University of Sri Jayewardenepura, a striking statistic emerges: approximately 60% of undergraduate scholars find themselves without access to the institution's hostel facilities. This gap in on-

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* Corresponding author kgpk@sjp.ac.lk

campus housing provision presents a distinctive opportunity for private housing providers to fill the void.

However, a conspicuous gap exists in the regulatory framework governing student private housing, leaving scholars to explore alternative accommodations, often resorting to hotels. The choice of private housing, a decision laden with multifaceted considerations such as location, accessibility, safety, amenities, and the degree of independence it affords, is a pivotal determinant of a student's overall university experience. The central aim of this research endeavor is to construct a practical tool that will empower students to make well-informed decisions when selecting private accommodations. Given that a significant proportion of these students hails from rural areas, where daily commuting to the university is a practical impossibility, the significance of accessible and suitable student housing cannot be overstated. The absence of adequate housing options poses a formidable challenge, underscoring the need for the university to step in and offer guidance in the selection of private housing. Such guidance holds the potential to profoundly benefit the majority of students who confront the daunting task of securing suitable accommodations within often constrained timeframes.

The Objective of the Study

The primary objective of this research is to establish a comprehensive understanding of the relationship between the amenities and rental values associated with private student accommodations in the vicinity of the University of Sri Jayewardenepura. To achieve this overarching aim, the following specific objectives have been devised:

1. **Characterization of Private Student Accommodations**: The initial objective is to discern and categorize the various types of private student accommodations available within the proximate area of the University.
2. **Facility Analysis**: Subsequently, an in-depth examination of the facilities and amenities provided by these student accommodations, situated in the vicinity of the University, will be conducted.
3. **Rental Value Relationship Analysis**: The final objective is to analyze and elucidate the intricate relationship between the rental values associated with student accommodations located in the immediate vicinity of the University.

These specific objectives will guide the research in shedding light on the interplay between facilities and rental values within the context of private student housing, ultimately contributing to a more comprehensive understanding of the dynamics in this domain.

Literature Review

Education is the primary means of increasing knowledge and achieving certain objectives. Education is a lifetime experience that aids in the growth of the individual on the inside (Anon., 2013). University housing should be made available to the majority of students since it is a basic requirement. Most students who pursue higher education often come from diverse rural areas. The government is the main provider of dorm space for higher education institutions in underdeveloped countries. A facility that has been made available to students whose homes are far from their educational institution is known as student housing, sometimes referred to as a student hostel or housing (Chiguvi & Ndoma, 2018). The students can often share the room with others, depending on its size. Many universities place a strong emphasis on providing impressive resources to attract students, particularly those from outside the city and overseas students, who should consider the availability of suitable and affordable accommodation. College funding has been reduced recently, and large infrastructure projects like housing may compete for the remaining discretionary funds (Clement, 2003). Most college freshmen are between the ages of

19 and 20. The majority of them have never lived away from home or been in a hostel. Thus, by spending a significant amount of time away from home, young pupils may learn a lot about life. They may pick up skills such as how to manage their daily duties, live independently, collaborate and work with roommates, share bathrooms and kitchens, etc (Ghani & Suleiman, 2016). Additionally, Garg, et al. (2014) pointed out that relocating away from their families to seek higher education has had a major influence on students' personalities and psychological well-being. Days of classwork may be missed by students while they hunt for suitable student accommodation. In addition, students often miss class, assignments, and practices, which might occasionally affect their grades (Chiguvi & Ndoma, 2018).

In Sri Lanka, giving university students lodging is a necessary condition for their capacity to learn (University Grant Commission, 2004). But there isn't enough accommodation for all of the university students who are enrolling every year. The University of Sri Jayewardenepura has (8421 + 4571) 12,992 undergraduate students enrolled in its degree programs, according to the table. Only (3751 + 1468) 5219 freshmen are selected for university residence, though. 40% of the student population, or the remaining 60%, must find private housing. This fraction includes undergraduates who commute from their homes and reside in private housing. Rent is a major factor affecting university accommodation and several factors influence it and next section focuses to identify difference influence factors that affect rental value.

Rental values are influenced by several factors in the majority of markets. These include infrastructure, government taxation, supply and demand, interest rates, inflation, and affordability. (2014) Jeremy & Wu Assets for businesses are frequently ones that may be rented out. These include residential residences as well as structures like offices, retail businesses, and industries that may be very profitable for investors and landlords in Nigeria. "Housing is vital because everyone needs a place to live with amenities and a place to live for shelter," says the lecture note for macroeconomics (2012). In contrast, most households in developed nations purchase more than they truly require, and as a result of this level of consumption, housing is frequently viewed as a luxury good. The majority of countries consider owning real estate to be an investment. So, housing might be good to buy and investment. Even if some households opt to rent from public (social) landlords, this is a practice that is becoming less common worldwide. The following are the main factors that influence rental values, according to Jack Harvey's book Urban Land Economics: Harper (1996)

Methods

The research design comprises three pivotal stages: literature review, data collection, and data preparation. During the literature review, an in-depth analysis of prior research on accommodations was undertaken, uncovering shortcomings in existing approaches. To address these limitations and introduce a novel planning strategy, a specialized statistical measurement was formulated. Subsequently, the focus shifted towards the process of data collection and preparation. Primary data were gathered through participatory rural appraisal methods, including key informant interviews, focus group discussions, and household questionnaires. Of the 200 surveys distributed, 176 were completed in their entirety, alongside recorded interviews and discussions. Additionally, secondary data from the University Hostel Office was incorporated to access information regarding hostel amenities and the number of students seeking private lodgings. Data preparation entailed the utilization of software tools such as R and SPSS. The collected data underwent transformation into analytical and statistical formats. Categorical data was refined utilizing the K-Nearest Neighbour (KNN) algorithm in R, an apt choice for cases with limited prior knowledge about data distribution. Likewise, Likert scale data, employed to gauge opinions and satisfaction levels, was transmuted into statistical and analytical data through SPSS.

In summary, the research design encompassed a comprehensive literature review, followed by data collection facilitated by participatory techniques and data preparation using specialized software tools. These meticulous stages were meticulously structured to not only surmount past limitations but also yield invaluable insights into the realm of student housing accommodations.

### *Data Collection and Data Preparation*

The primary component of the research design was Stage 02, which involved data collection and data preparation. The practical and ground-level works are processed in stage two. The primary and secondary data had been utilized in Stage 2. Participatory rural appraisal served as the primary data source and the primary learning strategy (PRA Methods).

The University Hostel Office is the secondary data source, and it has collected information on a variety of hostel amenities, current restrictions on providing hostel amenities, and the number of students who would have private lodgings.

Development of Framework to Identify the Nature and Rental value of Student Accommodation.

The independent variables are the level of status and characteristics described by the many literature reviews (in table 1) and it elaborates the sensitivity or variability of the dependent variable. In the first phase, the independent variable varies with the variation of Measurement of Independent Indicators, which has a direct impact on the variation of the dependent variable of Rental value of Private Student Accommodation in the case study of the University of Sri Jayewardenepura.

Figure 01: Framework for Rental Value Analysis
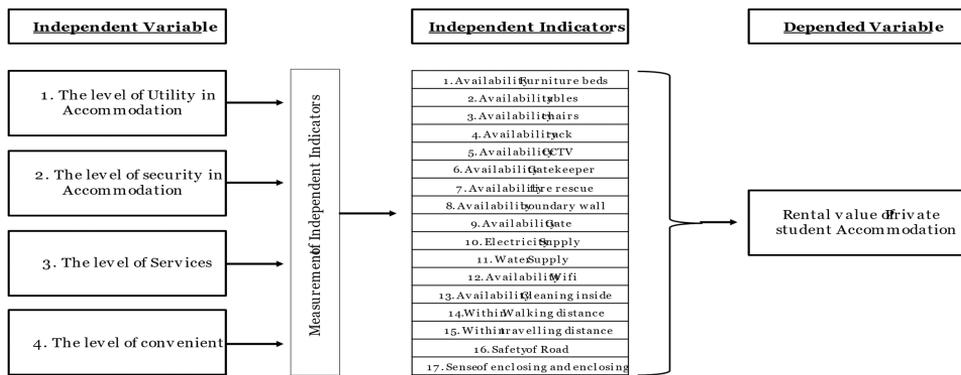
Development of database.

Table 01: Parameter Selection

Parameter	No	Measures	Calculation/Equation/ Measurement/ Method of Presentation	Study and supporting literature
The level of Utility in Accommodation	1	Availability Furniture beds	Availability (Physically Appearance)	Marcus, 2010; Sayyar and Marcus, 2013
	2	Availability tables	Availability (Physically Appearance)	
	3	Availability chairs	Availability (Physically Appearance)	Harvey, 1996)
	4	Availability rack	Availability (Physically Appearance)	(Hsiung & Perng, 19
The level of security in Accommodation	5	Availability CCTV	Availability (Physically Appearance)	Harvey, 1996)
	6	Availability Gatekeeper	Availability (Physically Appearance)	(Hsiung & Perng, 2019).
	7	Availability fire rescue	Availability (Physically Appearance)	Harvey, 1996)
	8	Availability boundary wall	Availability (Physically Appearance)	Harvey, 1996)
	9	Availability Gate	Availability (Physically Appearance)	Marcus, 2010; Sayyar and Marcus, 2013
The level of Services	10	Electricity Supply	Availability (Method of providing like Free, Added to Rent)	(Hsiung & Perng, 2019).
	11	Water Supply	Availability (Method of providing like Free, Added to Rent)	(Hsiung & Perng, 2019).
	12	Availability Wifi	Availability (Method of providing like Free, Added to Rent)	(Hsiung & Perng, 2019).
	13	Availability Cleaning inside	Availability (Method of providing like Free, Added to Rent)	Marcus, 2010; Sayyar and Marcus, 2013
The level of convenient	14	Within Walking distance	within 500 m buffer zone	Harvey, 1996)
	15	Within travelling distance	within a 2km buffer zone	Marcus, 2010; Sayyar and Marcus, 2013
	16	Safety of Road	personal preference - Likert Scale	(Hsiung & Perng, 19
	17	Sense of enclosing and enclosing	personal preference - Likert Scale	(Hsiung & Perng, 2019).

The Database was developed based on the collection of primary data around the USJ. The questionnaire was hand-delivered to 200 respondents and collected the next day, and it took 1 week to compile all of the interviewees' replies. Twenty-seven (27) of the response sheets were eliminated for not fully completing the questionnaire after receiving all of the submissions. As a result, there were 100% of the total replies, and 98% of those were examined. All the datasheets include the X and Y coordinates of every boarding place and they gather the information as bellow mentioned.

Results and Discussion

Descriptive Analysis

In the provided table, data pertaining to utility, security, services, comfort, and rent for accommodations has been analysed. Utility exhibits the highest variation, with a standard deviation of 0.556, signifying diverse levels among the observed data points. In contrast, security displays minimal variance with a standard deviation of 0.200, indicating limited variation in this particular aspect. Skewness values for the dataset fall within the range of -1 to +1, suggesting a typical distribution pattern for the data. Moreover, the kurtosis levels remain within acceptable bounds, thereby permitting the application of parametric analysis techniques for further investigation.

Table 02: Statistical Analysis

			Statistics		
	The level of Utility in Accommodation	The level of security in Accommodation	The level of Services	The level of convenient	Fin rent per student
Mean	2.6	4.1	4.1	4.0	3.7
Median	2.67	4.3	4.28	4.4	3.79
Mode	2.833	4.33	4.57	4.4	3.32

Std. Deviation	.556	.44	.47	.53	.38
Variance	.310	.200	.221	.282	.148
Range	2.83	1.66	2.28	1.8	1.79

Histograms serve as effective tools for visually representing the frequency distribution of data. In this study, histograms were employed to analyze the Levels of Utility, Security, Service, and Convenience in private accommodations. For the Level of Utility, the histogram displayed a symmetric bell curve, indicating that the data points clustered around the mean, suggesting a relatively normal distribution. In contrast, the histogram for the Level of Security exhibited two distinct peaks, implying the presence of two separate groups with the highest frequency of occurrences. This bimodal distribution suggests that security perceptions among respondents were not evenly distributed but rather clustered into two distinct categories. Both the Level of Service and Level of Convenience histograms displayed left-skewed distributions. Their peaks were located to the right of the center and tapered to the left. These histograms were unimodal, indicating a single prominent mode, which was positioned to the right of both the mean and median. It's noteworthy that the mean values for all indicators were smaller than both the median and mode, indicating a leftward skew and that the distribution of responses was negatively skewed. This suggests that for these aspects of private accommodations, respondents tended to rate them slightly lower than the most common or typical response. In sum, the histograms provided valuable insights into the distribution patterns and characteristics of the data related to various facets of private accommodations, shedding light on the diversity and skewness of respondents' perceptions.

Overall Multiple Regression Analysis – All Independent variable variation with Dependent variables

An examination was undertaken to assess the relationship between the independent variables and the dependent variables. Here are the key findings: Model Summary: The R-squared (R²) value is 0.855, signifying that a substantial percentage of the variance in the dependent variable can be explained by the independent variables. This suggests a strong relationship between the predictors and the outcome. Adjusted R-squared: The adjusted R-squared value, which accounts for the number of predictors in the model, reaffirms that the observed model's fit is not merely a result of chance. It further substantiates the robustness of the model. Durbin-Watson Statistic: The Durbin-Watson statistic indicated positive autocorrelation. This finding suggests that there may be some degree of dependence or correlation among the observations, which should be considered in the analysis. Significance of F Change: The Significance of F change value is 0.00, indicating statistical significance. This means that the multiple regression analysis effectively explains the variability observed in the dependent variable, considering the independent variables under consideration. In other words, the relationship between the predictors and the outcome is statistically significant.

Table 03: Model Summary

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate	Change Statistics	
					R Square Change	F Change
1	.924[a]	.855	.854	.1468	.855	0.000

The Anova table presents a residual mean square of 0.022, indicating a strong alignment between the model and an individual data point. Within the coefficients table, the beta coefficient unveils the impact of variations in the independent variable on the outcome variable. Specifically, the unstandardized coefficient beta value for the interactive management variable stands at -0.484. This suggests that, for each 1-unit increment in the predictor variable linked to logistic branch performance, the outcome variable decreases by approximately 0.484 units. The multiple regression analysis reveals the significant influence of four independent variables on the dependent variable, which is the rental price of private lodging. These influential variables encompass the level of convenience, the level of utility in lodging, the level of services, and the level of security in lodging. Among this quartet, the level of convenience exerts the most substantial impact, as evidenced by its significant beta value, approximately 0.669. This indicates that the level of convenience accounts for a considerable portion, roughly 87%, of the variability observed in rental prices. Hence, these variables emerge as the primary determinants among the independent factors that shape the dependent variable.

Table 04: Rent per Student

		Final rent per student
The level of Utility in Accommodation	Pearson Correlation	.406[**]
	Sig. (2-tailed)	.000
The level of convenient	Pearson Correlation	.924[**]
	Sig. (2-tailed)	.000
The level of Services	Pearson Correlation	.870[**]
	Sig. (2-tailed)	.000
The level of security in Accommodation	Pearson Correlation	.919[**]
	Sig. (2-tailed)	.000
Fin rent per student	Pearson Correlation	1
	Sig. (2-tailed)	

The scatter plot concerning the level of convenience and rental value revealed a robust positive association, bolstered by an R-squared (R^2) value of 0.855, indicating a substantial and positive correlation between these factors. Similarly, the scatter plot depicting the level of utility suggested a moderately positive relationship with rental value, as evidenced by an R^2 score of 0.165. Lastly, the scatter plot for the level of security exhibited a formidable positive association with rental value, supported by an R^2 score of 0.844. These scatter plots offer clear visual evidence of the nature and strength of the relationships between the independent variables and rental value. The research findings yielded valuable insights into the landscape of boarding places around the University, shedding light on their characteristics and profiles. Moreover, the analysis uncovered significant correlations between rental values and the dependent variables, offering a
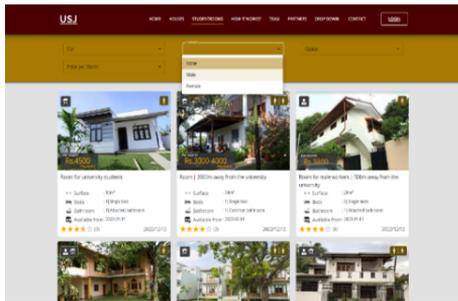
deeper understanding of the factors influencing rental prices. In light of these insights, a web application was developed, which will be briefly described in the following section.

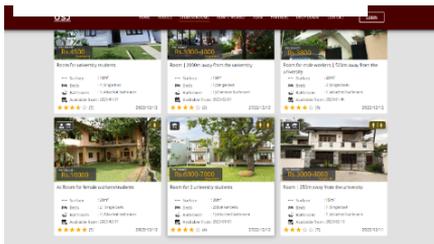## *Web Application Interface*

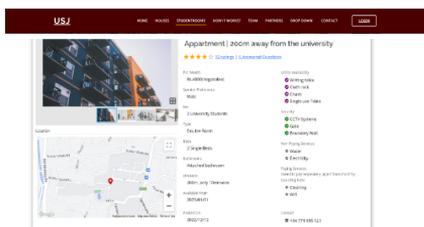**Figure 01:** The Home page of the Model web application for USJ

Figure 03: The Search page of the model web application

Figure 04: The filter page

Figure 05: The Advertisement page

The majority of this web application's user base, which includes university students and others looking for boarding houses in and near the university township of the University of Sri Jayawardhanapura, are tenants. The tenant has access to the web application's home page, where they can search for accommodations and enter their needs and interests. The unique element of this tenant user is that they may score their experience and thoughts and provide feedback through the advertisement, which will then appear on the advertisements.

One of the key feature pages of the online application is the Serch page. The accommodation type can be selected by the user who has access to the home screen. There are two types of accommodations, referred to as rentable houses and rentable student rooms, as previously mentioned. By selecting one of these two options, users will be taken to the search page titled "Serch here to your dream spot." To find accommodation, there are three basic search criteria

The filter page of vacant rentable place adverts can be considered as a mostly brief description of the Price or price range of a Rentable place. Additionally, there are images of various types of accommodations, including those for single, double, and other types, as well as information about general satisfaction with the accommodations. Through this tenant, the unoccupied rentable space and its reviews can be examined in detail. The filter page of vacant rentable place adverts can be considered as a mostly brief description of the Price or price range of a Rentable place. Additionally, there are images of various types of accommodations, including those for single, double, and other types, as well as information about general satisfaction with the accommodations. Through this tenant, the unoccupied rentable space and its reviews can be examined in detail.

The information for the available student room or boarding houses are included on the advertisement page. All of these advertisements are controlled by the admin account (the owners of private boarding houses), which is overseen by the owner account (USJ). To help potential tenants acquire a general understanding of the student room or rentable house, the advertisements offer the following information.

Conclusion

The primary objective of this study was to scrutinize the landscape of private student housing and construct an innovative statistical framework utilizing tools such as SPSS and AI. In the course of this investigation, it became evident that the existing statistical applications were plagued by inefficiency and limitations, prompting the recommendation for an efficient, straightforward, and effective framework for allocation of accommodations. The findings of this study serve to bridge a critical knowledge gap, providing valuable insights for both decision-makers and students concerning the availability of private housing within the institution. Common variables identified in this research possess applicability to other educational institutions across Sri Lanka, with minor adjustments based on localized research conducted at the University of Sri Jayewardenepura. The overarching aim is to streamline processes and datasets for effective utilization within Sri Lankan universities while offering recommendations for informed future decision-making. Moreover, the final objective of this research was to develop a web-based application, designed to enhance the accommodation assignment procedures. This application, informed by the research findings, aims to provide an efficient and user-friendly tool for both students and university administrators.

Our data analysis uncovered that the levels of comfort and security within accommodations are the foremost determinants of rental values in private student housing. These two parameters emerged as the most influential factors affecting variations in rental values, substantiated by multiple analytical approaches, including histograms, scatterplots, regression interpretations, significance tests, and notably higher R-squared (R^2) values compared to other variables. While the degree of utility within accommodations and the level of services also exhibited some impact on rental prices, their influence was not as pronounced as that of comfort and security. In essence, this study pinpoints the pivotal factors that wield the greatest influence over fluctuations in rental prices within the realm of private student housing.

In closing, this research contributes a fresh perspective and a robust analytical framework to the domain of private student housing, offering actionable insights that can drive more informed decision-making and foster enhanced accommodation practices within Sri Lankan universities. The development of the web-based application represents a concrete step toward achieving these objectives, ultimately benefiting both students and institutions alike.

Acknowledgements

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