



**IDENTIFYING AND ANALYZING FACTORS THAT AFFECT THE
WILLINGNESS-TO-PAY OF TUITION OF A BOARDING HIGH SCHOOL
IN A REMOTE AREA IN INDONESIA**

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Abstract:

Tuition is a critical consideration for families who plan to send their children for superior high school. In any purchase strategy, ability to pay (ATP) and willingness to pay (WTP) have a different understanding. ATP depends on any information related to families' wealth while WTP is determined by how families' perceived the value proposition provided. This study aims to measure WTP and identify the factors that influence the tuition of superior high school, so it can be use in determining marketing strategies and pricing strategies. This data was collected by questionnaire to 360 respondents obtained during student admission of SMA Unggul Del. The relationship of factors that influence the WTP is determined by multiple linear regression methods. Based on the analysis, the average WTP is Rp1.135.322,22, while the mode value is Rp1.000.000,00 per month. Factors influencing WTP are the age of parents, income level, and parent's WTP ratio of the tuition of SMA Unggul Del with that of other favorite school. Based on these factors, to be able to target parents of students with higher WTP, an effective marketing strategy is targeting parents with higher income levels, younger, and perceive SMA Unggul Del more than other schools.

Keywords: Willingness-To-Pay; Regression; Marketing Strategy; Pricing Strategy.

Cite This Article: Jesse Lumbantobing, and Yosef Manik. (2019). "IDENTIFYING AND ANALYZING FACTORS THAT AFFECT THE WILLINGNESS-TO-PAY OF TUITION OF A BOARDING HIGH SCHOOL IN A REMOTE AREA IN INDONESIA." *International Journal of Engineering Technologies and Management Research*, 6(8), 72-87. DOI: <https://doi.org/10.29121/ijetmr.v6.i8.2019.443>.

1. Introduction

Education is one of the important things for the society. One of the education level that can be taken is middle education. Middle education is the level of education after primary education that includes senior high school based on Indonesian culture. Primary education is the level before middle education that includes elementary school and junior high school. Students have to graduate from junior high school to get to senior high school.

For students who are still in third grade of junior high school in Indonesia, senior high school become a dilemma because they will be dealing with various considerations. One of the things to consider is the tuition. The tuition fee is important for the continuity of the education cycle in universities. People who are more capable to pay the education cost will choose services from the

best educational institutions, such as superior senior high school. Talking about the tuition fee for superior high school, there is the ability to pay (ATP) and the willingness to pay (WTP) in any purchase decision. ATP depends on any information related to families' wealth[1]. WTP is determined by how families' perceived the value proposition provided[2].

Within the geographical context of Indonesia, there are still few studies conducted in measuring the willingness to pay of superior senior high school and their determinants [3]. Therefore, this study is important for SMA Unggul Del to understand the WTP of its prospective students so that its governing body can set appropriate strategies in determining the operational policies. The purpose of the study is to determine the tuition fee for education in IT Del by prospective students, to identify factors affecting the prospective student's WTP to IT Del, and to find out the recommendation of the strategy of determining the tuition fee for decision maker in IT Del.

SMA Unggul Del was established in 2012 aimed at providing access to quality education in remote areas for outstanding students with economically disadvantaged backgrounds, particularly those from surrounding areas where SMA Unggul Del is located. SMA Unggul Del was established with the vision of being a superior schools that are called to educate and develop the knowledge and person of the nation for the advancement of Indonesia[4]. Since its establishment, the number of students in SMA Unggul Del has increased significantly from year to year (Figure 1).

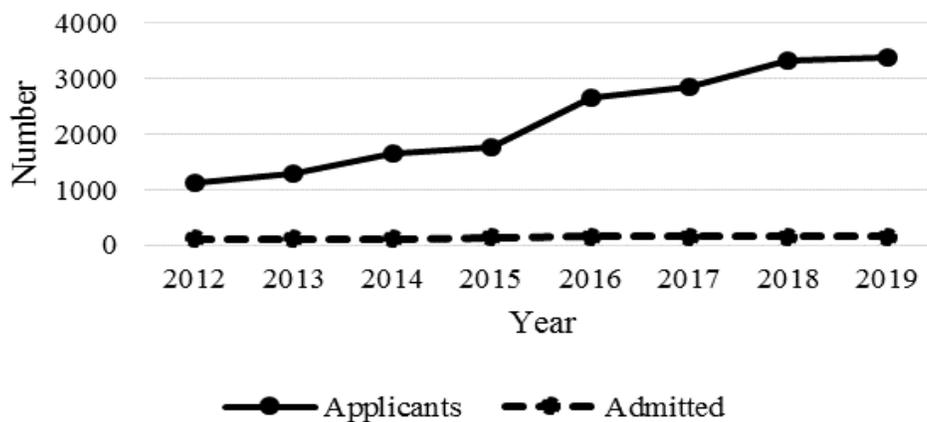


Figure 1: The Number of Applicants and Admitted Students in SMA Unggul Del

From the graph above, it can be seen that the competition level of junior high school students registering to SMA Unggul Del increases year by year. IT Del is committed to improving facilities and services that support its academic and operational activities. This commitment drives interest of prospective students to enroll in IT Del. Fig. 2 depicts the profile of registrants of SMA Unggul Del by geographical location.

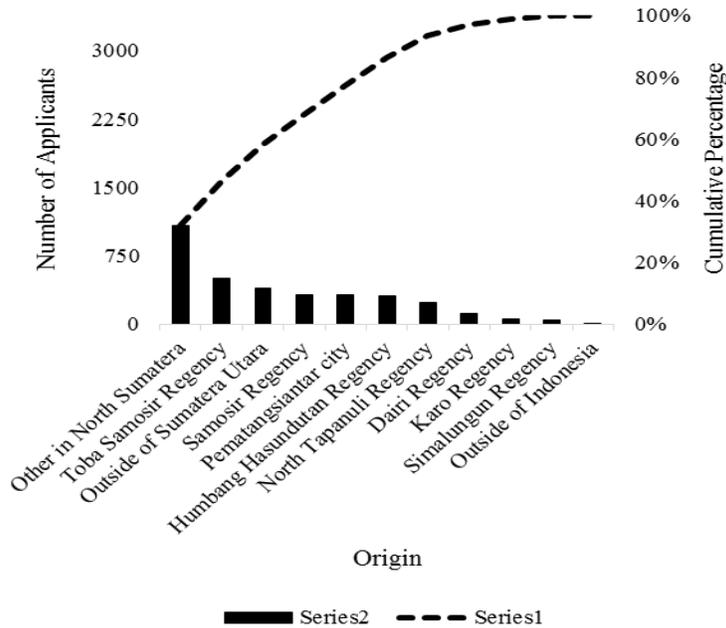


Figure 2: Profile Registrants to SMA Unggul Del by Geographical Location

2. Materials and Methods

In conducting this study, the following methodology is employed (Figure 3).

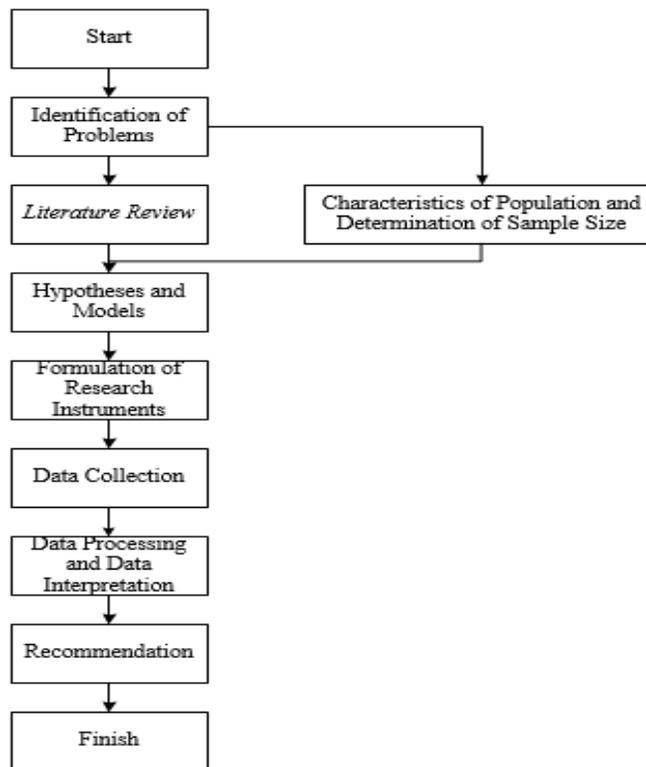


Figure 3: Methodology of Study

This study begins by conducting a literature review of ATP and WTP to understand to which extend the context of the study has been discussed elsewhere. Several literatures have been reviewed and the result reveals that:

- 1) Previous study shows that study related to WTP for tuition is mostly conducted outside Indonesia, and study related to WTP for tuition is mostly conducted for higher education. But there is study related to WTP for tuition on superior senior high school in Malang City[3], the determinants are household income, number of dependents, parental education and access to school.
- 2) Previous research also shows several factors that influence WTP for tuition. Some of the studies related to factors that influence WTP for tuition are:

Family Profile

WTP depend on the ability of households to pay school fees[5]. This is also endorsed by a study in Malang City which shows that the level of household income affects the WTP for tuition [3]. The education level of parents influences WTP for tuition. That is, every increase in education that has been taken will increase WTP for tuition[3]. Parental residence has a positive influence on WTP for tuition, where those living in urban areas have higher WTP than those who live in rural areas[6]. The number of subsidized family members affects the WTP for tuition. This means that the number of family members (who are still in school and not yet working) has an effect on the willingness to pay for education[3]. WTP is affected by ATP. The higher the ATP of a person is, the higher the WTP for tuition. Inversely, the lower the ATP level of a person, the lower the WTP[7].

Insight into School

Most students consider the reputation of the campus to be extraordinarily important as a factor for choosing a campus. Specifically for studies at KTH, most study participants considered KTH's reputation to be very important as a factor in choosing KTH as a place to continue their studies. The cost of education is also very important in someone choosing a college, where the higher the cost of tuition, the willingness to pay the cost of education will be lower[7].

Sex of Students

The low income groups of households were willing to pay more for the male than their female children at the highest cost of schooling of 200 percent increase[5].

After conducting the literature study, analysis the characteristic of the population also conducted in parallel. The intended population is the parents of prospective students who have an interest to continue studying in SMA Unggul Del. Based on the analysis of population, the facts about the characteristic and attributes of registrant SMA Unggul Del is obtained, which includes the characteristic demographics and preferences.

Based on the information from literature review and population analysis, modelling is performed by connecting independent and dependent variables. This research uses multiple regression method to estimate the influence of independent variable to dependent variable. Here is the estimation model used to determine the value of the independent variables that affect the dependent variable (Eq. 1). The information of the variable used in Eq. 1 shown in Table 1.

$$WTP = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + \dots \quad (1)$$

Table 1: Variable information table of Equation 1.

Variable	Label	Category	Type
WTP	Willingness-to-Pay		Scale
β	Intercept		
X_1, \dots, X_n	Factors that affect the willingness to pay		
X_1	Parental Residences	Rural Urban	Nominal
X_2	Age	≤ 40 years old 41 – 45 years old 46 – 50 years old ≥ 51 years old	Ordinal
X_3	Education level	Primary education Middle education High education	Ordinal
X_4	Income Level	Very low income Low income High income Very high income	Ordinal
X_5	Number of Dependents	One Two Three More than three	Ordinal
X_6	Ability to Pay	Low Moderate High	Ordinal
X_7	Sex of students	Female Male	Ordinal
X_8	Parents' insight of SMA Unggul Del image	Very low Low High Very high	Ordinal
X_9	Parents' perception of SMA Unggul Del value proposition	Very not important Not important Important Very important	Ordinal
X_{10}	Parents' insight of SMA Unggul Del tuition	Do not know Know	Nominal
X_{11}	Comparison of WTP for tuition in SMA Unggul Del to other school	Higher than WTP for tuition in SMA Unggul Del Lower than WTP for tuition in SMA Unggul Del	Ordinal
X_{12}	Parents' insight of other school tuition	Low Moderate High	Ordinal
e	Standard error		

Data collection has been conducted in the period of January until April 2019. A total of 360 respondents have been queried through a series of interviews and questionnaires. These respondents are parents whose children are still in junior high school and have interest to enroll in SMA Unggul Del. Origin of these respondents spread over several districts and cities that became the main target of prospective students of SMA Unggul Del in 2019.

3. Results and Discussions

From the results of data analysis, it is obtained that the range of WTP falls between Rp0,- and Rp5.000.000,- per month with the mode value of Rp1.000.000,- per month and mean value of Rp1.135.322,22 per month. More than half of the sample surveyed are willing to pay tuition fee of more than Rp 1,000,000.- or more per month(Fig. 4). The descriptive statistics of the willingness to pay shown in Table 2.

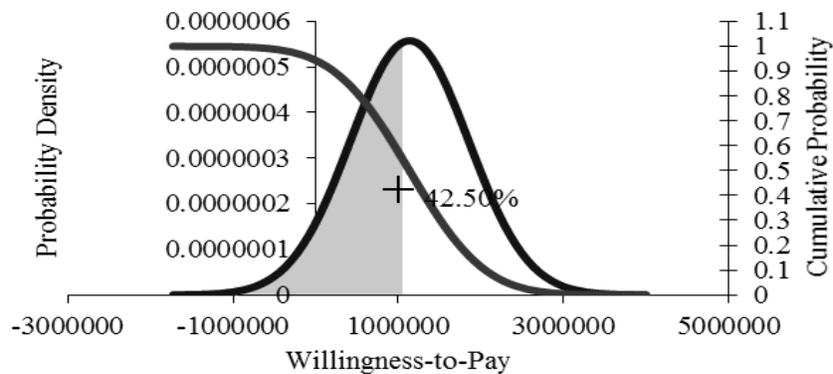


Figure 4: Willingness-to-Pay for tuition in SMA Unggul Del

Table 2: Descriptive Statistics of WTP

Willingness to Pay	
Mean (Rp)	1,135,322.22
Standard Error	37,691.93
Median (Rp)	1,000,000.00
Mode (Rp)	1,000,000.00
Standard Deviation (Rp)	715,154.03
Sample Variance (Rp)	511,445,288,641.29
Kurtosis	7.51
Skewness	2.01
Range (Rp)	5,000,000.00
Minimum (Rp)	0.00
Maximum (Rp)	5,000,000.00
Sum (Rp)	408,716,000.00
Count	360

Descriptive statistical analysis is used to assess the characteristics of a data, both data from the dependent variable and the independent variable. The characteristics are very diverse, including the mean, median, sum, variance, standard error, mode, range, minimal, maximum, skewness, and kurtosis. Descriptive statistics of variables shown in Table 3.

Table 3: Descriptive Statistics of Predictor Variables

	X01	X02	X03	X04	X05	X06	X07	X08	X09	X10	X11	X12
Mean	1.52	2.67	2.61	2.32	2.87	2.21	1.51	1.71	2.33	1.29	1.84	2.19
Std. Error	0.03	0.05	0.03	0.06	0.05	0.04	0.03	0.02	0.06	0.02	0.02	0.07
Median	2	3	3	2	3	2	2	2	2	1	2	1
Mode	2	3	3	1	3	3	2	2	1	1	2	1
Std. Dev.	0.50	0.94	0.53	1.09	0.90	0.79	0.50	0.46	1.11	0.46	0.36	1.27
Sample Var.	0.25	0.88	0.28	1.19	0.82	0.63	0.25	0.21	1.23	0.21	0.13	1.61
Kurtosis	-2.01	-0.89	-0.50	-1.27	-0.72	-1.30	-2.01	-1.19	-1.34	-1.16	1.65	-1.67
Skewness	-0.08	-0.1	-0.83	0.21	-0.35	-0.40	-0.02	-0.91	0.16	0.92	-1.91	0.27
Range	1	3	2	3	3	2	1	1	3	1	1	3
Minimum	1	1	1	1	1	1	1	1	1	1	1	1
Maximum	2	4	3	4	4	3	2	2	4	2	2	4
Sum	547	960	938	834	1032	797	542	614	839	465	664	789
Count	360	360	360	360	360	360	360	360	360	360	360	360

The variable parental residence (X_1) has a range of 1 to 2. The parental residence is divided into two, people living in rural areas and people living in urban areas. Based on the results obtained, the mode value is 2, meaning that most of the respondents are people who live in urban areas.

The variable age (X_2) has a range of 1 to 4. The value is 1, meaning the youngest respondent's age is below 40 years old. The value is 2, meaning the respondent's age between 41 to 45 years old. The value is 3, meaning the respondent's age between 46 to 50 years old. The value is 4, meaning the age of the respondent is more than 50 years. Based on the results obtained, the mode value is 3, meaning that most of the respondents are people between 46 to 50 years old. That is, the age of 46 to 50 years old is a productive age, or it can be said that those who have 45 to 50 years old of age have an average child who is still in high school.

Education level variables (X_3) have ranges from 1 to 3. Educational level is divided into three, primary education (1), secondary education (2), and higher education (3). Based on the results obtained, the mode value is 3, meaning that most respondents have higher education backgrounds which include diploma, bachelor, master, specialism and doctoral programs.

The income level variable (X_4) is divided into 4, very low income, if the income level is below Rp4.451.220,01 (1), low income, if the income level is below Rp6.855.670,60 (2), high income, if the income level is below Rp9.346.591,41 (3), and very high income, if the income level is above Rp9.346.591,41 (4). Based on the results obtained, the mode value is 1, meaning that most respondents have very low income level, which is below Rp4.451.220,01.

The variable number of dependents (X_5) has a range of 1 to 4. The categories of dependents per household are divided into four parts, namely, one (1), two (2), three (3), more than three (4). Based on the results obtained, the mode value is 5, meaning that most respondents have more three

dependents per household. Based on these results, the number of dependents certainly affects the amount or costs incurred for everyday life. The more number of dependents, the more the amount or cost incurred for daily needs.

The ability to pay variable (X_6) has a range of values from 1 to 3. The ability to pay categories are divided into three, the ability to pay low (1), moderate (2), and high (3). Based on the results obtained, the value of mode is 3, meaning that most respondents have high ability to pay.

The student sex variable (X_7) has a range of values from 1 to 2. The sex variable categories are divided into two, female (1) and male (2). Based on the results obtained, the value mode is 2, meaning that most respondents register their son to SMA Unggul Del.

The variable parents' insight of the SMA Unggul Del image (X_8) has a range of 1 to 4. Understanding of the IT Del image is divided into four parts, namely very low (1), low (2), high (3), and very high (4). Based on the results obtained, the mode value is 2, meaning that most respondents have a low understanding of the SMA Unggul Del image.

The variable parents' perception of the SMA Unggul Del value proposition (X_9) has a range of 1 to 4. The perception category of the SMA Unggul Del value proposition has a range of 1 to 4, categorized by the average quartile value of the respondents' importance to the SMA Unggul Del value proposition, which is very not important if the average data value is smaller or equal to quartile 1 which is 4.29 (1), not important if the average value of the data is smaller or equal to the 2 quartile of data which is 4.50 (2), important if the average data value is smaller or equal to the 3 data quartile of 4.71 (3), and very important if the average value of the data is greater than the quartile of 3 data which is 4.71 (4). Based on the results obtained by the mode value is 1, meaning that most of the respondents' importance to the value proposition of SMA Unggul Del is relatively low compared to other respondents.

The variable parents' insight of the SMA Unggul Del tuition (X_{10}) has a range of 1 to 2. The category of parents' insight of SMA Unggul Del has a range of 1 to 2, that is, do not know, if the respondent does not know that the range of tuition for SMA Unggul Del students entering the 2018/2019 school year is between Rp1.050.000, and Rp1.500.000,- (1), and know, if the respondent knows that the range of tuition for SMA Unggul Del students entering the 2018/2019 school year is between Rp1.050.000,- and Rp1.500.000,- Based on the results obtained, the mode value is 1, meaning that most parents do not know the tuition for SMA Unggul Del in the previous year.

The variable comparison of WTP for tuition in SMA Unggul Del to other school (X_{11}) has a range of 1 to 3. This variable is divided into 3, which is lower or equal to (1), and higher (3). Based on the results obtained, the mode value is 3, meaning that most parents want to pay the education fee for Del Superior High School higher than other schools.

The variable Parents' insight of other school tuition (X_{12}) has a range of 1 to 3. This variable is divided into 3 based on the data quartile, which is relatively low if it is lower or equal to the 1st and 2nd quartile value of the data that has the same value of Rp80.000,- (1), is relatively moderate if it is lower or equal to the 3rd quartile value of the data which is Rp600.000,- (2), and is relatively

high if it is higher than the 3rd quartile value of the data (3). Based on the results obtained, the mode value is 1, meaning that in the respondents' insight of other schools tuition are mostly relatively low.

The classic assumption of multiple linear regression is one of the prerequisites in correlation analysis or multiple linear regression. The classic assumption test used is linearity test, multicollinearity test, and normality test.

Linearity

The classical linearity assumption test aims to show whether two variables have a linear relationship (significant) or not. Linearity test is one of the prerequisites in multiple linear regression analysis. Linearity is the initial assumption that should exist in a linear regression model. If the value of the Prob. F count is greater than alpha level 0.05, the regression model fulfills linearity assumptions and vice versa[8]. Linearity analysis and data processing techniques are assisted by using EViews 10 SV software. The linearity test results are shown in Table 4.

Table 4: Classical Assumptions of Multiple Linear Regression: Linearity

Ramsey RESET Test			
Equation: UNTITLED			
Specification: WTP C X01 X02 X03 X04 X05 X06 X07 X08 X09 X10 X11 X12			
Omitted Variables: Squares of fitted values			
	Value	Df	Probability
t-statistic	0.048684	346	0.9612
F-statistic	0.002370	(1, 346)	0.9612
Likelihood ratio	0.002466	1	0.9604

From Table 4 it is known that the value of the Prob. F is 0.9612, which means greater than 0.05, it can be concluded that this regression model has met the linearity assumption.

Multicollinearity

The classical assumption of multicollinearity test is used to measure the degree of closeness of the relationship between independent variables[9]. Multicollinearity analysis and data processing techniques are assisted by using EViews 10 SV software. The results of the classic assumption of multicollinearity can be seen in Table 5.

Table 5: Classical Assumptions of Multiple Linear Regression: Multicollinearity

Variance Inflation Factors			
Sample: 1 360			
Included observations: 360			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1.46E+11	121.2468	NA
X01	5.67E+09	12.04707	1.175458
X02	1.46E+09	9.650115	1.054327
X03	4.84E+09	28.41008	1.116624
X04	1.53E+09	8.328146	1.510006
X05	1.66E+09	12.42151	1.121450

X06	2.86E+09	13.11287	1.480261
X07	4.94E+09	10.33453	1.026482
X08	6.29E+09	16.28248	1.085337
X09	1.02E+09	5.643494	1.039853
X10	6.19E+09	9.642233	1.062431
X11	1.13E+10	33.08048	1.229826
X12	2.49E+09	7.316879	1.317367

Multicollinearity test results, can be seen in the centered VIF column table. VIF values for income level, age, education level, domicile geographical location, number of dependents, perceptions of IT Del value propositions, understanding of IT Del image, and ability to pay have a VIF value not greater than 10 or 5, then it can be said no multicollinearity occurs in the eight independent variables. Based on the classical assumptions of linear regression, the eight variables are free from multicollinearity.

Normality

The classical normality assumption test is used to test the dependent variable (X) and and the independent variables (Y) in multiple linear regression equations, whether normal distribution or not. Based on the central limit theorem, samples with more than 30 have normal distribution properties[10]. The sample of this study was 330 samples. This means that samples of more than 30 samples are centered on population parameter values and have normal distribution properties. Thus, the research variable has been normally distributed.

Multiple linear regression is used to see whether there is a relationship or influence of two or more independent variables on the dependent variable. The method that can be used to estimate the parameters of multiple linear regression models is the ordinary least squares method[11]. The correlation is tested on the significant level of $\alpha = 0.05$. The result of statistic test to the model is shown in Table 6. Data analysis and processing techniques are assisted by using EViews 10 SV software.

Table 6: Multiple Linear Regression

Dependent Variable: WTP					
Method: Least Square					
Variable	Coefficient	Std. Error	t-Statistic	Prob	
C	-137804.1	382045.1	-0.360701	0.7185	
X01	78667.59	75290.76	1.044851	0.2968	
X02	-98788.09	38146.40	-2.589709	0.0100	Signifikan
X03	-6655.509	69567.82	-0.095669	0.9238	
X04	142614.5	39106.49	3.646823	0.0003	Signifikan
X05	-71174.49	40685.78	-1.749370	0.0811	
X06	70549.82	53451.78	1.319878	0.1877	
X07	86315.34	70309.18	1.227654	0.2204	
X08	103265.2	79303.90	1.302146	0.1937	
X09	-36530.99	31942.64	-1.143644	0.2536	
X10	-95302.70	78680.59	-1.211260	0.2266	
X11	526064.0	106163.0	4.955249	0.0000	Signifikan
X12	49148.66	49909.07	0.984764	0.3254	

Table 6 shows that the variables that significantly affect WTP ($p\text{-value} \leq \alpha$) are the income level variable (X1), the numbers of dependants (X5), and ability to pay (X8). Meanwhile, other variables did not show significant correlation.

Relationship between Parental Residence and Willingness-to-Pay

Multiple linear regression analysis shows that parental residence is not a determinant of willingness to pay education costs. The parental residence does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Age and Willingness-to-Pay

Multiple linear regression analysis shows that age is a determinant of willingness to pay education costs.

From Table 6 it can also be seen that the regression coefficient value between age and WTP is negative. This value indicates that the age is inversely proportional to the willingness to pay. That is, the higher the income will affect the willingness to pay someone.

The results of this study indicate that a person's age plays an important role in determining the willingness to pay the tuition for SMA Unggul Del. Older parents affect low willingness to pay too, meaning that those older parents tend to prioritize their daily needs and have a low awareness of the willingness to pay the cost of education for higher education.

Relationship between Education Level and Willingness-to-Pay

Multiple linear regression analysis shows that education level is not a determinant of willingness to pay education costs. The education level does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Income Level and Willingness-to-Pay

Multiple linear regression analysis shows that income level is a determinant of willingness to pay education costs.

From Table 6 it can also be seen that the regression coefficient value between income level and WTP is positive. This value indicates that the level of income is directly proportional to the willingness to pay. That is, the higher the income will affect the willingness to pay someone.

The results of this study indicate that a person's income level plays an important role in determining the willingness to pay the cost of education for higher education. Low income levels can affect low willingness to pay too, meaning that those who have low income tend to prioritize their daily needs and have a low awareness of the willingness to pay the cost of education for higher education.

Relationship between Number of Dependents and Willingness-to-Pay

Multiple linear regression analysis shows that number of dependents is not a determinant of willingness to pay education costs. The number of dependents does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Ability-to-Pay and Willingness-to-Pay

Multiple linear regression analysis shows that ability to pay is not a determinant of willingness to pay education costs. The ability to pay does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Sex of Students and Willingness-to-Pay

Multiple linear regression analysis shows that sex of students is not a determinant of willingness to pay education costs. The sex of students does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Parents' Insight of SMA Unggul Del Image and Willingness-to-Pay

Multiple linear regression analysis shows that parents' insight of SMA Unggul Del image is not a determinant of willingness to pay education costs. The parents' insight of SMA Unggul Del image does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Parents' Perception of SMA Unggul Del Value Proposition and Willingness-to-Pay

Multiple linear regression analysis shows that parents' perception of SMA Unggul Del value proposition is not a determinant of willingness to pay education costs. The parents' perception of SMA Unggul del value proposition does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Parents' Insight of SMA Unggul Del Tuition and Willingness-to-Pay

Multiple linear regression analysis shows that parents' insight of SMA Unggul Del tuition is not a determinant of willingness to pay education costs. The parents' insight of SMA Unggul Del tuition does not have an important role that can encourage a person to wish to pay the cost of education.

Relationship between Comparison of WTP for Tuition in SMA Unggul Del to Other School and Willingness-to-Pay

Multiple linear regression analysis shows that comparison of WTP for tuition in SMA Unggul Del to other school is a determinant of willingness to pay education costs.

From Table 6 it can also be seen that the regression coefficient value between comparison of WTP for tuition in SMA Unggul Del to other school and WTP is positive. This value indicates that the comparison of WTP for tuition in SMA Unggul Del to other school is directly proportional to the willingness to pay. That is, the higher the comparison of WTP for tuition in SMA Unggul Del to other school will affect the willingness to pay someone.

The results of this study indicate that a person's comparison of WTP for tuition in SMA Unggul Del to other school plays an important role in determining the willingness to pay the cost of education for higher education. Since WTP is containing the value of the product or services, this comparison shows how people compare value of SMA Unggul Del to other school. So, if SMA Unggul Del wants to keep parents' WTP high, they have to maintain and enhance their value proposition which considered more important by parents.

- 1) Relationship between Parents' insight of Other School Tuition and Willingness-to-Pay

Multiple linear regression analysis shows that parents' insight of other school tuition is not a determinant of willingness to pay education costs. The parents' insight of other school tuition does not have an important role that can encourage a person to wish to pay the cost of education.

Based on the research, there are three determinants of willingness to pay is age, income level, and comparison of WTP for tuition in SMA Unggul Del to other school. Important factors which are then needed to become a pricing strategy for SMA Unggul Del.

Age

The factor of parents' age influences the willingness to pay the SMA Unggul Del tuition negatively. This means that the older the parents of students, the lower the willingness to pay for SMA Unggul Del fees. Accordingly, SMA Unggul Del can target the younger parents to enroll their children.

Income Level

Parental income level factor influences the willingness to pay the SMA Unggul Del tuition fees positively. This means that the higher the level of income of parents, the higher the willingness to pay towards SMA Unggul Del fees. Since 2015, SMA Unggul Del has implemented a pricing strategy in which each parent with different income levels will be charged different school fees, where school fees will be higher when the parents' income level is higher.

The density curve can be simulated to be a material consideration for decision makers in setting school fees in SMA Unggul Del. Refer to SMA Unggul Del tuition fees imposed on students entering the 2018/2019 school year with a range of school fees of between Rp1.050.000,- and Rp1.500.000,- then the percentage of parents who have the appropriate willingness to pay is 24,24%. While the percentage of parents who have the willingness to pay is less than Rp1.050.000,- and greater than Rp1.500.000,- respectively at 45,25% and 30,51%. This means that there are still parents who have the willingness to pay more than Rp1.500.000,-. But based on this study, the most dominating are parents who have the willingness to pay less than Rp1.050.000,- per month. To be more clearly, shown in Fig. 5.

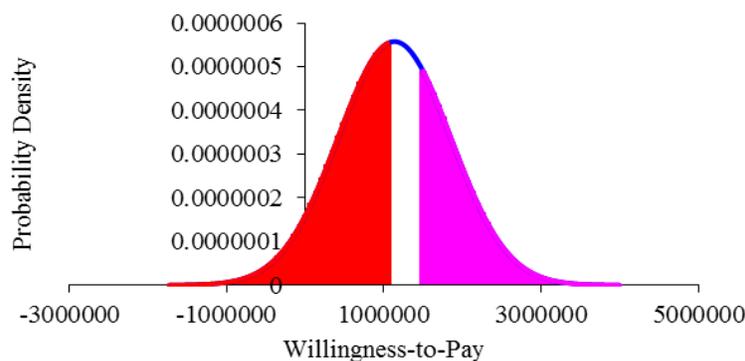


Figure 5: Cumulative Probability of WTP

Based on the results above, certainly it can be said that very many people are not willing to pay tuition with this value, where the lower limit of tuition is set too high. At first glance, a strategy can be taken that the lower limit of SMA Unggul Del tuition must be adjusted to reach the willingness to pay more people.

According to information from SMA Unggul Del stakeholder, setting tuition with this value higher than parental WTP is the high interest of people from various walks of life, from rural to urban areas, and from the economic level from high to low to register. The aim of the presence of SMA Unggul Del is expected to be able to realize the wishes of the people who are located in the Lake Toba region with an economic background that is not good for a good education. This means that the target market of SMA Unggul Del is students from the Lake Toba region with an unfavorable economic background. However, the high public interest in registering from various groups shown in Figure 1 makes it possible for entry of registrants from various groups outside the intended target market.

In carrying out the education process, SMA Unggul Del requires relatively high operational costs. The high operational costs needed to maintain the quality of SMA Unggul Del remain high in terms of facilities, teacher quality, and others. These costs are covered through tuition fees paid by parents every month.

With a high need for operational costs, the funds raised by SMA Unggul Del are also high. With the initial target market, the SMA Unggul Del will seek funds to subsidize students through funds channeled by the Yayasan Del. But with the number of students who graduate to SMA Unggul Del with a high economic background, the funds channeled to finance the education of students from economically disadvantaged backgrounds will be irrelevant, resulting in a significant increase in school fees until the cost of the school is higher than average parent WTP.

To continue to fulfill the goal of realizing the desire of the community located in the Lake Toba region with an unfavorable economic background for a good education, the SMA Unggul Del must continue to facilitate underprivileged students to be able to enjoy quality education. So the way that SMA Unggul Del can do is cross-subsidies, so that people from higher economic backgrounds can contribute to providing access to education for students from low economic backgrounds. Apart from that, SMA Unggul Del must provide economic scholarships to people from very low economic backgrounds. But SMA Unggul Del has to make strict selection for recipients of economic scholarships so that the funds can be channeled on target.

Comparison of WTP for tuition in SMA Unggul Del to other school

Comparison of WTP for tuition in SMA Unggul Del to other school influences the willingness to pay for the SMA Unggul Del tuition positively. This means that the higher the level of income of parents, the higher the willingness to pay towards SMA Unggul Del tuition. When parents have high WTP, it will be related, meaning that parents' assessment of SMA Unggul Del is better than other schools. From several added values or the SMA Unggul Del value proposition, the value proposition can be determined which is the most important according to parents. Based on research, it can be described the level of importance of parents to the value proposition of SMA Unggul Del as shown in Table 6

Table 6: Importance Level of Value Proposition of SMA Unggul Del

No.	Value Proposition	Importance Level
1	SMA Unggul Del is located near Lake Toba with beautiful scenery	3.38
2	The students lived in dormitory, supervised by priest with high discipline	4.60

No.	Value Proposition	Importance Level
3	SMA Unggul Del students is conditioned to be good in English to be able to face global competition	4.73
4	The teachers is easy to get because they lived around the school.	4.32
5	Recruitment process of the teacher is very competitive to make sure that all the teacher is qualified to the high standard of SMA Unggul Del	4.69
6	SMA Unggul Del is fully facilitated and have a certain quality	4.74
7	Scholarship is provided	4.52
8	SMA Unggul Del agreement with national and international organization (Pestalozzi, International Space Station, etc.)	4.66
9	SMA Unggul Del invite people from government, lecturer, and influencer to give a speech in front of the students	4.43
10	SMA Unggul Del has programs that support the students to continue their education to the best university	4.78
11	Students development from activity of students organization	4.32
12	Organizing programs with foreign universities (for example "Summer School" with Czech University of Life Science)	4.50
13	Organizing science, social, language, art, and sport competition (Science Expo, Language Month, etc.)	4.13
14	Student accomplishment in science, social, language, art, and sport, in national and international (International Biology Olympiade, Orientale Concentus International Choral Festival, dll.)	4.66

4. Conclusions and Recommendations

Based on results obtained, the average willingness to pay for tuition of SMA Unggul Del is Rp1.135.322,22, with the mode value of Rp1.000.000,00. Factors affecting willingness-to-pay is parents' age, income level, and comparison of WTP for tuition in SMA Unggul Del to other school. Based on the factors, SMA Unggul Del can apply some marketing strategy such as targeting younger parents, applying cross subsidies, and maintaining the value proposition so the willingness-to-pay for tuition in SMA Unggul Del will remain high or get any higher. However, it should be noted that, if this scenario is implemented then the risk is one of the missions of SMA Unggul Del, which is to provide access to quality education in remote areas for outstanding students with economically disadvantaged backgrounds, especially those from surrounding areas where SMA Unggul Del is located, become unfulfilled. In addition, other things that can be done is to establish cooperation with local governments in making scholarship bonding services with higher tuition fee value.

Other than that, SMA Unggul Del have to do a research about willingness-to-pay periodically, because the WTP may fluctuating due to the factor comparison of WTP for tuition in SMA Unggul Del to other school. Because this factor may change when there is a good news or bad news about SMA Unggul Del.

References

- [1] Rumiati, K. Fahmi dan B. Edison, "Analisis Kemampuan Membayar dan Kemauan Membayar Tarif Angkutan Umum Mini Bus (Superben) di Kabupaten Rokan Hulu," *Jurnal Mahasiswa Fakultas Teknik*, vol. 1, no. 1, 2013.
- [2] T. B. Joewono, "Exploring the Willingness to Pay for Paratransit in Bandung, Indonesia," *Journal of Public Transportation*, vol. 12, no. 2, pp. 85-103, 2009.
- [3] M. I. Rosyadi, Sasongko dan A. Hoetoro, "Willingness to Pay Rumah Tangga dalam Membayar Biaya Pendidikan Menengah Unggulan di Kota Malang," *Jurnal Ekonomi dan Studi Pembangunan*, vol. 8, no. 2, pp. 153-167, 2016.
- [4] SMA Unggul Del, "Tentang SMA Unggul Del - SMA Unggul Del," [Online]. Available: http://www.smadel.sch.id/?page_id=73. [Accessed 12 Maret 2019].
- [5] E. Ekanem, J. E. Okon dan U. I. Ekpoh, "Reforming Education through User Fees: Ability and Willingness to Pay for University Education in Calabar, Nigeria," *Journal of Education and Practice*, vol. 3, no. 8, pp. 245-250, 2012.
- [6] W. Li dan W. Min, *Tuition, Private Demand, and Higher Education in China*, Beijing: Peking University, 2001.
- [7] X. Ke, *The Willingness to Pay Tuition Fee at KTH*, Stockholm: KTH Royal Institute of Technology, 2012.
- [8] R. S. Witte and J. S. Witte, *Statistics*, 10th Edition, New Jersey: John Wiley, 2013.
- [9] M. Sternstein, *Barron's AP Statistics*, 9th edition, New York: Barron's Educational Series, 2019.
- [10] R. E. Walpole dan R. H. Myers, *Ilmu Peluang dan Statistika untuk Insinyur dan Ilmuwan*, Bandung: Institut Teknologi Bandung, 1991.
- [11] J. T. McClave and P. G. Benson, *Statistics for Business and Economics*, London: Pearson Education, 2015.

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