The Factors of Decision in Taking Tertiary Education

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Abstract

The decision to access tertiary education is influenced by individual characteristics, household characteristics, and regional factors. This study aimed to examine the determinant of individual decision to access tertiary education based on individual characteristics, household characteristics, and regional factors. The respondents of the study were 19 years old or above and already finished secondary education. This study used secondary data from data Indonesian Family Life Survey (IFLS) 5. Technique analysis used multinominal logit by samples that consist of 1.936 respondent. The result of this analysis showed that the individual characteristic that consist of UN score, Sex, and Occupational status while study has significant impact on the choice to access undergraduate study. Likewise, on the household characteristics that consist of educational assistance from non government, level of education of head of household, and the consumption per member of the family has significant impact to the choice to access diploma. In undergraduate education, only the UN score in individual characteristic that has significant impact. The household characteristics were consist of educational assistance from government and non-government, the level of education of head of household, the consumption per member of the family, and dependency ratio impact significantly on the choice to access undergraduate study.

JEL Classification: I20, I21, I25
Keywords: *Household Characteristics, Individual Characteristics, Indonesia Family Life Survey, Multinomial Logit, Regional Factors, Tertiary Education*

1. INTRODUCTION

The objective of economic development cannot be separated in relation to the improvement of the human capital process, one of the way is through education. Education has an important role as a determinant in the quality of human resources. The improvement of the quality of human resources can be achieved through proper and comprehensive education, so that it can be perceived the benefits, processes, and results by the broad society. Education also has a major role in forming a developing country in order to be able to absorb modern technology, develop the capacities and capabilities of its citizens, and to create innovative, creative, and solutive generations of challenges as well as social and economic change.

Aks for the definition of higher education is further described in Law no. 2 Year 2012 on Higher Education, it is stated that tertiary or higher education is the level of education performed after secondary education that includes diploma programs, bachelor programs, master programs, doctoral programs, and

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professional programs, also specialist programs, organized by universities based on the culture of Indonesian people.

According to Tilak (2009) mentioned there are at least six tertiary educational functions for the future of the country, among them are; 1) tertiary education can help, create, advance, absorb and spread science through teaching processes and academic research ; 2) tertiary education can provide professional labor and have good technical and managerial abilities for industrial development and economic activities; 3) the university is an institution that helps build and instill ethical, character and moral values for its students, creates an well regulated attitude and makes changes in societal attitudes needed in the era of modernization by maintaining and improving social values and society norms; 4) tertiary education can also create a society that plays an active role in politics, social, culture and economics as a contribution in a democratic country and form a strong country; 5) tertiary education can also create a society that able to know, maintain, improve and introduce national, regional, international and historical cultures; 6) tertiary education can also create future social and political leaders that has high caliber and vision.

Todaro and Smith (2006) stated that the demand for tertiary education are caused by various factors. These factors can be non-market (non-economic), but in general these factors can be determined from the combination between demand and supply forces as well as in the law of supply and demand on other goods or services. On the supply side, services and education facilities in developing countries are provided by the government, then certain factors from the demand side have urgency that should be examined further.

There are some factors that attributed to the individual, such as sex, cognitive, and occupational status when he/she is studying secondary education. In addition to the attributed factors of the individual, the household background can also affect the individual's decision in tertiary education. Regional factors also affect through infrastructure in urban/rural areas. Urgency of this study is one of the efforts in the field of academics to analyze the factors that influence individual decisions in choosing tertiary education, so that it can be used as a reference in the next policy. The alternative choice of decision to continue undergraduate and diploma education are separated, because there are different concepts in diploma and bachelor.

2. LITERATURE STUDY AND HYPOTHESIS DEVELOPMENT

Tertiary Education

Tertiary education is one kind of formal education. (BPS, 2015) Formal education is a structured and tiered, that consist of primary, secondary, and tertiary education. Higher education includes Diploma level I, II, III, and IV, and equal. In Law no. 12 Year 2012 states that:

"... Education is a conscious and well-planned effort to create an atmosphere of learning and learning process so that learners are actively develop their potential to have religious spiritual, self-control, personality, intelligence, noble character, as well as the necessary skills needed by themselves, society, nation and country."

Individual Characteristics

a. Sex

According to Setiadi and Kolip (2011), sex leads to a division of physiological or anatomic of human biologically. The concept of sex differ humans more in which human with the sexes of men and women can be identified through the possession of genitals and their sexual role.

b. Occupational status while taking secondary education

The occupational status while taking secondary education has a positive and significant impact on the demand for diploma education. The results of the study found by Ogawa and Iimura (2010) are in contrast to the hypotheses that have been compiled. The occupational status variables have a positive impact on the demand for undergraduate education in urban or urban models. This is because the presence of the high motivation to work better and through the improvement of the quality of the study so that it will choose undergraduate education. It is also supported by the fact that in urban areas provide many employment opportunities for its graduates. As opposed to urban area cases, occupational status is very important in diploma programs in rural areas.

c. UN Score

The examination score that becomes the cognitive proxy of the individual has a positive and significant impact on the demand for education. The results of the study obtained from Jimenez and Velasco (2000) are impact significant and positively, because the examination scores are the determinant in graduation and the requirements for tertiary education.

Household Characteristics

a.Age of Head of Household

Age is the length of time of life or existence (since birth or held) (Hoetomo, 2005). Age is used to be a reference in determining individual productivity. There are three categories for age-based productivity level. The first category is called the young-age category, this category is under 15 years old. The productive age group is someone between the aged between 15-64 or the age group who are doing the work and earning income. Third, the old age group, that is in the age range of 65 years and over. This age group is not possible to do productivity because at that age the physical and the strength had already declined.

Stoner (1986) states that a one's age is related to the productivity of his work. The higher the age of the individual then the declining the productivity is due to age that can not support the performance as young age. Robbins (2003) illustrates this condition with illustrations such as an inverted U-curve. Nakamura (1993) analyzed the influence of the age of the head of household on tertiary education. From the results of his research reveals that age is related to the assets of the head of households owned. The greater the age of the heads of households, the greater the chance to enter tertiary education. This is because the older the age then the greater the income and assets owned from the accumulated income during the productive age.

b. Dependency Ratio

Dependency Ratio is the ratio between the population aged 0-14 years old and 65 years old and over compared to the population aged 15-64 years. In other words, the dependency ratio is the ratio between the non-labor population and the number of labor population (BPS 2017).

Manvi and Wisana (2014) examined the Relationship of the Number of Children and the Quality of Education. This study used IFLS 4 data and used linear and logit regression models to generate estimation with different goals. The result

obtained is in the use of linear regression method, found a positive relationship between the number of children and school duration. This indicates there is no trade off between the quantity and quality of children aged 7-24 years. Variable levels of educational achievement was also used in this test as other educational quality approach. The resuls with the logit model support the previous findings, that is there is no trade off between the number of children and the level of educational achievement.

The results of the study were different with Oogawa and Iimura (2010) related to the number of children to educational probability. Families with relatively young children (age category 0-14) years will have higher spending burden. The number of young children in the family has a negative impact on individual demand for tertiary education because of a decrease in family budget per household member. The number of children is also correlated with the choice of tertiary education entry. This is because it has a negative impact that can cause financial obstacles on the household budget.

c. Educational background of the head of the family

Study on the resource allocation in household was also examined by Setyari (2013) entitled Distribution of Resource Allocation in Households in Indonesia: School or Working children. The objective of this study is to find out the choice of parents to be on the choice of letting their child be in school for future investment or letting the individual to work. The most noticeable result is the significant effect of parent education on the allocation choice. The higher the education of parents, the higher the achievement of children's education and the decreasing probability of children to work.

d. Educational Assistance

Educational and scholarship assistance is a different concept and has a different focus and goals for the recipients. Educational assistance in general is a form of financial assistance provided to individuals, students or learners that are used for the sustainability of education pursued. According Murniasih (2009) scholarship is defined as a form of appreciation given to the individuals in order to continue education to a higher level. The appreciation can be a certain access to an institution or an appreciation of financial assistance. The types of scholarships that can be awarded to individuals are scholarships award, grant scholarships, athletic scholarships and full scholarships that will be provided to cover life needs, book costs, research costs and tuition fees.

The differences in scholarships and educational assistance are further described in Permendikbud No.75 Year 2016 mentioning the definition of educational assistance is the giving of money/goods/services by an unit of educational stakeholders outside the students or their parents/guardians, on the terms agreed by the parties. According to Law No. 12 of 2012 on Higher Education in Article 76 states that the scholarship is the support of tuition fees provided to the students to follow and/or complete higher education based on the main considerations of achievement and/or potential academic.

A study that relates the variables of educational/scholarship assistance to the educational decision duration. Educational assistance always provides a dispensation for someone in going throgh his education. Gounder and Xing (2012) revealed that educational assistance fund has a positive and significant impact on the decision.of school duration. Another research from (Conlon and Ladher etc,

2017) found that the removal of student tuition fee support would have a negative effect on demand for higher education.

e. Household Consumption

Households is the customer or user of goods and services as well as owners of labor, land, capital and entrepreneurial factors of production. In a household performing consumption activities that can be shown from the amount of household expenditure. The level amount of expenditure depends on the needs and the amount of household members. BPS (2015) Household expenditure includes various household final consumption expenditures on goods and services to meet household needs.

Hypothesis

Based on some theories and empirical study, the hypothesis in this research is defined as the following:

Hypothesis 1: Individual characteristics have a significant impact on the choice of individual decisions in taking tertiary education

Hypothesis 2: household characteristcs have a significant impact on the choice of individual decisions in taking tertiary education

Hypothesis 3: Regional factors have a significant impact on the choice of individual decisions in taking tertiary education

3. RESEARCH METHODS

Variable Operationalization

Table 1 Variable Operationalization

Variable	Scale	Type of Data	Notes
Tertiary Education	Nominal	Secondary	1: Not taking tertiary education 2: Diploma 3: Undergraduate
Sex	Nominal	Secondary	(Dummy) 1: Female 0: Male
UN Score	Interval	Secondary	Based on three course, mathematics,Bahasa, and English
Occupation while secondary school	Nominal	Secondary	(Dummy) 0: not working 1: working
Age of Head of Household	Interval	Secondary	-
Age of Head of Household being quadrate	Interval	Secondary	-
The length education of the head of household	Interval	Secondary	-
Total household consumption per capita	Interval	Secondary	-
Young dependency ratio	Ratio	Secondary	-
Old dependency ratio	Ratio	Secondary	-
Educational assistance from government	Nominal	Secondary	-
Educational assistance from non-government	Nominal	Secondary	-
Living	Nominal	Secondary	(Dummy) 1: Urban 0: Rural

Sources and Methods of Determining Data

The data used in this study is secondary data based on survey results from IFLS (Indonesia Family Life Survey) conducted by RAND Coorporation. IFLS is a survey that contains aspects of household life, individuals, education, health, marriage, migration, and employment. Surveys conducted by IFLS are sustainable (longitudional). The survey was first carried out in 1993 (IFLS 1), then in 1997 (IFLS 2), 2000 (IFLS 3), 2007 (IFLS 4), and the latest survey in 2014 (IFLS 5). This study used individual respondent data in 2014 (IFLS 5). The type of data in this study is cross section data and presents a variety of information in the western Indonesian province from a certain sample set.

In this study used the IFLS 5 survey results or at the time of the year 2014. The period of the year is selected because the data of that period is the latest available data. IFLS 5 survey taken individual respondents data as many as 36,391 people. In this study, data collection based on the number of individual respondents minimized based on two criteria, tht is in the age category 19-25 years and must meet the requirements to have completed secondary education (Senior High School/Vocational School/Aliyah /equal).

Data Analysis Technique and Hypothesis Test

This study used descriptive-quantitative analysis method. Descriptive analysis is used to analyze the general description of respondent characteristics based on the variables used in the model. Quantitative analysis is used to analyze the factors that influence the individual decisions in taking tertiary education.

The model used in quantitative analysis is multinomial logit regression. Multinomial logit allows the dependent variable or independent variable in the regression model to not always quantitative, but allows in qualitative form. (Yastiti, 2013). The model is named as a qualitative choice model. (Juanda, 2009) The aims of a qualitative choice model is to determine the chance or probability of individuals with certain characteristics in choosing a choice from the various alternatives that have been provided.

The multinomial logit model is divided into two categories, namely ordered multinomial logit (to make probabilities based on ordinal, like very goog/ good / bad). Another type of model is to allow the dependent variable based on the nominal .. The measurement scale used in the dependent variable is the nominal measurement scale.

Undergraduate, diploma and non tertiary education programs are changer that has nature of categorical and discrete. Other opinion about this method are stated by Starweather and Moske (2011), who reveal that multinomial logit regression is used to predict categorical placement or probability of each category on independent variables to the dependent variable. In accordance with the definition of the multinomial logit model, then model equation is compiled by including the dependent and independent variable elements as follows:

$$\text{Ln}\left(\frac{\pi 1(x)}{\pi j\,(x)}\right) = \beta j_0 + \beta_{jjk}\,JK + \beta_{jwork}WORK + \beta j_{agehh}AgeHH + \beta_{agehhsq}AGEHHSQ + \beta_{jeduhh}EDUHH + \beta_{Jcons}CONS + \beta_{jdepratio1}Depratio_1 + \beta_{jdepratio2}Depratio_2 + \beta_{jassistgov}AssistGov + \beta_{jassistnongov}AssistNonGov + \beta_{jliving}Living$$

where,

J = 2, 3

$\pi 1(x)$	= Individual opportunity does not taking tertiary education
$\pi 2(x)$	= Individual opportunity taking diploma education
$\pi 3(x)$	= Individual opportunity taking undergraduate education
JK	= Sex
UN	= Total score of three subjects of UN
Work	= Working at the time taking secondary education
AgeHH	= Age of head of household
AgeHHSQ	= Age of head of household being quadrate
EDUHH	= The length education of the head of household
CONS	= Total household consumption per capita
DepRatio1	= Young dependency ratio
DepRatio2	= Old dependency ratio
AssistGov	= Educational assistance from government
AssistnonGov	= Educational assistance from non-government
Living	= Residence
Bjp	= Parameter assesment

As for the purpose by using multinomial logit in this study is to predict the individual probability in choosing each of the several alternatives available on selected opportunities. Each individuals have an opportunity to choose events 1,2,3 (in accordance with its logit function), which is taking undergraduate or diploma or does not continue their education after graduation from secondary education. Software program to assist data processing of this study by using STATA 13 application.

The method used to estimate the multinomial logistic regression model parameters is the maximum likelihood method (maximum likelihood methods). The likelihood equation on multinomial logit regression is nonlinear equation in regression coefficient parameter, so to solve the equation it can be obtained the value of parameter estimation. According to Starkweather and Moske (2011), multinomial logit regression does not consider the test of normality, linearity, and homoscedicity.

4. RESULTS AND DISCUSSION

Descriptive Analysis

Tertiary education is a higher level of education and finished after secondary education. The tertiary education level includes undergraduate, diploma, master degree, doctoral program, professional program, and specialist program. This study used the respondent data with criteria of aged 19-25 years and also must pass from secondary education. From those criteria, as many as 1,936 respondents declared to have passed tertiary education and have a moment in decision-making that is influenced by factors that can affect the decision.

Table 2 Frequency data of respondent toward the tertiary education choice

No.	Level of Education	Frequency (person)	Percentage (%)
1	Does not taking Tertiary education	1,179	60.9
2	Tertiary Education (Bachelor)	590	30.47
3	Tertiary Education (Diploma)	167	8.63
	Total	1,936	100

Source: IFLS *West* 5, processed

Table 2 shows that out of a total of 1,936 secondary graduates, it was found that 60.9 percent does not taking tertiary education. This figure is quite high compared to the individuals who follow tertiary education. This shows that secondary education is still the primary choice in the highest educational choice for individuals. After graduate from secondary education, individuals have other alternative choices, for example is to work or other reasons. The number of individuals who taking tertiary education for bachelor degree is 30.46 percent and diploma tertiary education is 8.63 percent.

The independent variables used in this study include the sex of the individual, the status of work at the time of secondary education, the score of the UN, the age of head of household, residence, educational assistance from government and non-government, dependency ratio, and household consumption. The variables are examined to analyze the individual decisions in tertiary education. From the variables used, the following are presented the descriptive statistics in Table 6.

Table 3 shows descriptive statistics that explain the average, lowest values, and the highest values of each variable that will be examined. The sex variables are relatively balanced between female and male respondents. This is seen from frequency, but female respondents are slightly more dominant than men in this study. The occupational status at the time of secondary education, has an average value of 0.160, it means that the total respondents that examined were dominated by respondents who did not work at the time of secondary education. The average of the UN score of all respondents is 21.41 from the total of perfect score, which is 30.

Table 3 Descriptive statistics

Variable	Mean	Minimum Score	Maximum Score	Frequency
Sex	0.517	-	-	0 = 935 ; 1 =1001
Work	0.16	-	-	0 = 1,625 ; 1 = 311
UN Score	21.41	7.95	29.994	-
AgeHH	52.14	20	92	-
AgeHHSQ	2,809.3	400	8,464	-
Living	-	-	-	0 = 1,360 ; 1=576
AssistGov	Diploma= 2,050,000; Sarjana = 2,214,286	-	-	0 = 1,869 ; 1 = 67
AssistNonGov	Diploma= 2,420,000 Sarjana= 8,548,077	-	-	0 = 1,897 ; 1 = 39
Depratio1	0.234	0	2	-
Depratio2	0.024	0	2	-
Consumption per capita	1,510,516	0	45,700,000	-
EduHH	15.57	0	20	-

Source: IFLS West 5, processed

The age of the head of household in this study had an average age of 52 years, it means that the average age of the head of household in this study was still in a productive age. As for the youngest age of the head of household is 20 years old and the eldest is 92 years old. The next variable is educational assistance from government and non-government. Few respondents receive educational assistance from the government. Similarly, the same conditions in educational assistance that comes from non-government.

The next variable is the young dependency ratio (*Depratio1*) and the old dependency ratio (*Depratio2*). If compared between the average of the two variables, it is found that the dependency ratio on young age is higher than old age. This indicates that the respondents who examined have the amount of family members who are categorized younger is more than the number of older family members.

The average consumption per capita from the total respondents examined is 1,510,516 with a maximum value of 45,700,000 in rupiah. The respondent's resident is dominated in rural areas. The last variable, that is, the length of education of the head of household has an average of 15.57 years or has completed secondary education (Senior High School and equal).

Multinomial Logit Regression Analysis and Risk Relative Ratio (RRR) Analysis

Multinomial logit analysis is used to find out the factors that affect individual decisions in tertiary education, and determine the probability of individuals in taking tertiary education. On the dependent variable consists of undergraduate tertiary education, diploma tertiary education, and others (does not

taking tertiary education). These three logit categories will be an option that must be selected by secondary education graduates.

This model used base category to facilitate mathematical equations in interpreting the estimation results. Base category is a category that is considered fixed and used as a comparison with other categories (Probokawuryan, 2015). The selection of base category is based on the most frequencies as already explained and attached before, the category with most respondents is located in other categories (does not taking tertiary education).

Risk Relative Ratio (RRR) is a comparison of the occurence probability of an event. RRR's value exceeds 1 indicates that individual has a greater chance of choosing tertiary education (undergraduate/diploma) than not choosing tertiary education. RRR's value is less than 1 indicates that individual has a chance of not choosing tertiary education alternatives rather than not taking tertiary education. Opportunity comparison in each model uses base category, which is not taking the tertiary education. To determine the value of RRR uses the significant values only. The value of RRR can be seen in Table 4.

Partial test for each independent variable is conducted by looking at the probability score of each variable. The estimation results in Table 4 shows that there are six significant independent variables in diploma tertiary education at the real level of 0.05. Significant variables for individual decisions in choosing a diploma education at the 5% level of significance consist of the UN score, sex, educational background of the head of household, the level of household consumption, and the occupational status at the time of secondary education. Participant who choose bachelor education, the significant variables at the 5 percent, there are the age of the head of household, the UN score, educational assistance from the government, educational assistance from non-government education, the educational background of the head of household, the level of household consumption, the age of the head of household, and the young dependency ratio.

Table 4 Results of multinomial logit regression and risk relative ratio

Variable	**Diploma**			**Undergraduate**		
	Coef	**p>|z|**	**RRR**	***Coef***	**p>|z|**	**RRR**
UN	0.11	0.003*	1.112	0.07	0.000*	1.077
Sex	0.73	0.001*	2.072	0.16	0.238	1.175
Work	-0.83	0.046*	0.437	0.08	0.660	1.080
AgeHH	0.05	0.569	1.049	0.11	0.035*	1.113
AgeHHSQ	-0.00	0.778	0.999	-0.00	0.082	0.999
AssistGov	0.07	0.060	1.072	0.08	0.001*	1.082
AssistNonGov	0.12	0.025*	1.127	0.19	0.000*	1.214
Living	0.38	0.126	1.454	0.08	0.599	1.080
EduHH	0.18	0.000*	1.204	0.13	0.000*	1.145
Cons	1.08	0.000*	2.945	0.76	0.000*	2.130
Depratio1	0.52	0.260	1.670	-0.64	0.026*	0.522
Depratio2	0.71	0.555	2.028	1.20	0.072	3.328
_cons	-23.7	0.000	0.000	-17.5	0.000	0.000

No. of obs	1207
Pseudo R^2	0.1532
Log likelihood	-1003.1827
Prob > χ^2	0.00000
Wald χ^2	261.96
LR χ^2	363.10

Information : *significant at 5%
Notes : Base category is not taking the tertiary education
Source : IFLS West 5, processed

Individual characteristics are the characteristics attached to each individual. This study uses National Exam Scores variable as the cognitive proxy/individual intelligence, gender, and working status when the individuals take their secondary education. Those three variables are inherent variables or those within each individual. In this study, the three variables are examined based on the individulas conditions.

UN score variable has p-value equal to 0.003, meaning that with the limit of significance level of 5 percent then H_0 can be used as a parameter assesment and significantly affect the decision to choose diploma education, ceteris paribus. Then, the value of p-value on UN score variable is amounted to 0.000, that means the UN score variable is significantly affects the individual decision to choose bachelor, ceteris paribus. In RRR analysis, Individuals with high national exam scores have a possibility of 1.077 times choosing bachelor degree than not choosing to continue their tertiary education, *ceteris paribus*. The possibility choosing diploma education in a group with high national exam score is 1.112 times than not choosing tertiary education, *ceteris paribus*.

The score of National Exam as proxy in evaluating individual's intelligence. The result of estimation in this research showed that National Exam score has positive effect toward the demand of tertiary in diploma or bachelor. The higher score of National Exam Individual can get, it will increase probability of the individual to get tertiary education.

National Exam score can influence because individual who has high intelligence will be more confident to register to tertiary education. For family who can't afford, it will give the confidence for the high intelligence individual by hoping that they can give return after tertiary education. The result of this research is similar with previous research which was done by Hansen et et al (1989), Ogawa and Iimura (2010) and Jimenez and Velasco (2000).

Variable of sex, has p-value amounted to 0.001 that means significant affect decision to choose diploma education, ceteris paribus. Variable of educational background of head of household have p- value of 0.0000 which means that variables significantly affect the decision to choose a diploma education, ceteris paribus. According to RRR analysis, Female individuals will have possibility of 2.072 times choosing diploma education than not choosing tertiary education, *ceteris paribus*.

The results of descriptive analysis show that tertiary education (bachelor degrees and diploma) is dominantly conducted by women than men. Male dominance is in other category or not taking the tertiary education. It shows that

gender issue on educational gender gap which usually occurs in the social conditions of developing countries, is not an obstacle in Indonesia. Education for women has been considered important. Todaro and Smith (2006) states that the women roles in education is not only on the gender equality issue of education, however women with higher education also help to economic development in Indonesia.

The previous research by Priyono (1998), Ogawa and Iimura (2010), and Chen (2000) uses dummy 1 for the male category. This study is difference in modelling and hypotheses so it uses dummy 1 for the female category. This study intends to examine and analyze the issue of gender education disparity that develops in Indonesia. Social and cultural issues are the trigger for women rights to access higher education. At the same time this study answers the previous suggestion from the research conducted by Ogawa and Iimura (2010) which states that women should be the considered subject variables. There's a presumption that women tend to choose diploma education.

Based on regression estimation from multinomial logit and RRR analysis, the result is that gender is only affecting the demand of diploma education. Significantly, woman has probability to have tertiary diploma education than nothing. The issue is, woman is lack of representation for labor market, so that diploma program is solution to help woman competes in labor. It is suitable to hypothesis of Ogawa and Iimura (2010).

The occupational status on secondary education has a p-value of 0.046, which means that the variable has a significant effect on the decision to choose diploma education. In the last variable, another significant variable is the consumption level of variable with p-value of 0.000, meaning that the level of household consumption affects the individual decision in choosing a diploma education, ceteris paribus.

The last variable in individual characteristic was working status while getting secondary education. The willing to work can appear because the condition of the family or individual motive to get perquisite. Estimation result from multinomial logit model showed that there was negative effect between working status while doing secondary education toward the choice of diploma education.

In RRR analysis, working status at a secondary education will reduce the possibility of 0.437 times choosing diploma education The result of that research is similar to research of Ogawa and Iimura (2010) in which working status while doing diploma education for individual who lives in village. A person who works while doing secondary education is considered in category of family that is not in high economic status. It is necessary to get more money to fund the needs of the individual or household. After graduated from secondary education, she/he will tent to not choose tertiary education. It is because the opportunities to get more money if they work full time.

It is related to development economic theory, that individual who does not have tertiary education will loss the chance to get social benefits and return level from investation in tertiary education in the future. The decision will impact to the time that loss because of having tertiary education and it will return as the income while working or others that are impossible to get if the person chooses doing tertiary education.

Household characteristic factor which was used in this research was the age of head of household, educational assistance for government and non-government,

The household characteristics factors used in this study were the household head's age, the education support from government and non-government institutions, the household head's educational background, total household consumption, and family dependency ratio. These factors are used to analyse the role and contribution of the household conditions in determining individual decisions in choosing the tertiary education. This study was also adapted to the household conditions of the respondents

The age variable of head of household has p-value of 0.035, which means that the age of the head of household significantly affects the individual decision to choose diploma, ceteris paribus. Educational assistance from the government with a p-value of 0.001, meaning that variables significantly affect the decision to choose bachelor deducation, ceteris paribus. In RRR analysis stated that each increasing of household head's age by one year will have a greater possibility of 1.113 times choosing bachelor education rather than choosing not to take the tertiary education, *ceteris paribus*. Meanwhile, Educational background of the household's heads with the longer years or the higher level of education will increase the possibility of 1.204 times to choose diploma education, *ceteris paribus*.

The usage of age variable of the head of the household (*AgeHHSQ*) aims to prove the hypothesis allegedly different from the age variable of the head of household (*AgeHH*). Every human being has a certain peak point in productivity. After reaching the peak point, there will be a decreased productivity along with the increasing of the age. This happens because old age is susceptible to decrease the productivity, decrease the energy, and unfavourable health conditions.

The results of the descriptive statistical analysis show that the average age of the head of the household in this study is 52 years old, with the oldest age is 92 years old and the youngest is 20 years old. The age of the household head has a positive influence on the demand for undergraduate education, so a one-year increase in the households will increase the probability of individuals in undergraduate education rather than the tertiary education.

This is in accordance with the research conducted by Nakamura (1993) that along with the increasing age of the head of household, assets or wealth obtained from the savings or income also increase during the productive age. Therefore, the higher age of the household head will be able to finance the individual through tertiary education.

The result of multinomial logit estimation shows that the *AgeHHSQ* variable is not significant on individual decisions in choosing tertiary diploma and undergraduate education. Thus, it can be concluded that the best variable to explain the age of the household head is the linear function (*AgeHH*) with a year unit.

The next variable is the education support provided during tertiary education. This variable is divided into two types according to educational support sources. The results of the descriptive analysis indicate that there is a very lame comparison between those who get educational support and those who do not. This is because the quota of educational support still does not meet the quantity of the tertiary education. Hence, some special qualifications such as academic achievement and low economic status of the household are required.

Non-governmental education assistance with p-value of 0.000 means that the variable significantly affects the demand of undergraduate education, *ceteris paribus*. Each head of familiy's educational background and level of consumption

have p-value of 0.000 which means that each variable has a significant effect on the individual preference of undergraduate education. The following variable is a variable of young dependency ratio has the p-value of 0.050 so that this variable significantly affects the decision to choose undergraduate education, *ceteris paribus*.

Then, in RRR analysis, individuals with governmental scholarships or education assistance will improve the possibility of 1.082 times choosing bachelor degrees than not continuing the education, *ceteris paribus*. Individuals with non-governmental sholarships or education assistance will improve the possibility of 1.214 times choosing bachelor degrees than choosing not to continue their education, *ceteris paribus*. Meanwhile, Non-governmental education assistance will increase the possibility of 1.127 times choosing diploma education than not choosing the tertiary education, *ceteris paribus*.

The result of multinomial logit regression shows that educational support from the government and non-government institutions give significant influence on the individual decision in tertiary education and increase the probability of someone to pursue undergraduate education compared to not pursuing the tertiary education. (Jimenez and Velasco 2000) the educational support can reduce the cost of direct and indirect educational costs of the recipients. Of course, the education support reduces tuition fees that becomes obstacles for poor families.

Non-governmental education support has a positive and significant influence on individual decisions in diploma education. In contrast, educational support from the government does not have a significant effect on individual decisions in choosing a diploma education. This is because the policy of scholarship program or educational support for the diploma from the government is very rare. The nominal given by the government is relatively lower than other educational support, so it has not been able to provide motivation or encouragement for individuals to choose a diploma education.

The third variable in the household characteristics is the educational background of the head of the household which is seen from the years of education. Longer education year of the head of the family or higher level of education will increase the probability of individuals in tertiary education (diploma or undergraduates) than not choosing the tertiary education. Educational background of the household's heads with the longer years or the higher level of education will increase the possibility of 1.145 times choosing bachelor degrees than not choosing to continue their tertiary education, *ceteris paribus*.Meanwhile, the longer years or the higher level education will increase the possibility of 1.204 times choosing diploma degrees than not choosing to continue their tertiary education

The head of the household who has a high level of education will encourage individuals in the family to get the level of education as expected or at least equivalent to the level of education of the household head. The educational background of the household head has an important influence on individual decisions. This is in accordance with the previous research studies conducted by Ogawa and Iimura (2010), Jimenez and Velasco (2000), Hansen et al. (1989), and Menon (1998).

In addition to the educational background of the heads of the households, household per capita consumption also has a great influence on the selection decisions of the tertiary education. Household consumption per capita is used as a proxy of household economic status. A high level of household consumption

indicates that the family's economic status is also high, assuming the income level of the household is equal to the total expenditure or consumption of the family.

This study does not use income variable because the variable is not relevant considering the household often manipulate the income data to be smaller than the original. The variable level of the household consumption is considered to be eligible to provide an explanation of the economic status of the households with the assumption that the level of household consumption equals with the total of household income.

The results of multinomial logit indicate that the effect of household consumption increases the probability for individuals in the tertiary education (diploma or undergraduate). It is because families with high per capita consumption indicate that the economic status of the household is good as well as the economic condition, so it can finance the tertiary education for the individuals. This is in accordance with the previous research conducted by Jimenez and Velasco (2000). In RRR analysis, families with high per capita consumption has a 2.130 times to choose bachelor degrees than not to continue their tertiary education, *ceteris paribus*. Same condition, families with high per capita consumption or assumed to be in a good economic life will improve the possibility of 2.945 times choosing diploma education than not choosing the tertiary education, *ceteris paribus*.

The number of family dependence indicates an increasing level of need or expenditure. Descriptive analysis results show that the largest number of dependents in each family is six people on the number of the dependence of young age (0-14 years old). The previous descriptive analysis also shows that the higher the number of the dependence, the less the number of the participants in the tertiary education.

The hypothesis of the dependency ratio on the age category (0-14) has a negative effect in pursuing the tertiary education. In RRR analysis, families with high young dependency ratio will reduce their possibility of 0.522 times choosing bachelor degrees, *ceteris paribus*. This is due to a decrease in family budget per household member. The amount of dependence in the family becomes an important consideration in the decision, where the dependent person in the family will be a burden. If the individuals continue their tertiary education under such conditions, it is not impossible that the burden in the family also increases as they have to finance the education. This result is in accordance with the previous research conducted by Ogawa and Iimura (2010).

The youth dependency ratio does not significantly affect the demand for diploma education because the duration of the diploma education is only three years. The graduates of the diploma education are also directed to be ready to work so that they have a relatively faster rate of returned benefits than the undergraduates.

In the old-age dependency ratio (65 years old and above), the results are not significant towards the decision to choose the tertiary education. This is because the member of productive age in the family is able to finance the needs of dependent family members. The previous descriptive statistical analysis shows that the number of the dependent family members is two at maximum. This number is not as many as the number of people who become the burden of the family in the category of young age.

The last variable is the regional factor that indicates the residence of the individual. This variable is divided into two categories of areas, namely urban and

rural areas. The result of the descriptive analysis shows that the dominance of tertiary education participants is in the urban areas. This is because tertiary educational infrastructures (universities, institutions, polytechnics, and other educational institutions) are mostly located in the urban areas. In addition, the condition of economic infrastructure (roads, bridges and electricity) in the urban areas is also better than the rural areas.

The estimation results show that there is no significant influence between the regional factors with the decision or the probability of individuals to pursue the tertiary education. This result is applicable to the demand for tertiary education diplomas as well as the undergraduates.

This case can occur due to the migration factor. The migration factor is not only based on the job opportunities or the seductiveness of the area alone. The educational factor can also cause the migrants to migrate. It is not difficult for Indonesian citizens from any region to migrate for tertiary education in the western area of Indonesia, and vice versa. This result is also supported by Todaro's (1998) study in which the education is one of the important driving factors in the migration process. The justification is also supported by the research studies conducted by Rahmawati (2010) in which the education affects positively towards individual's decision to migrate.

5. CONCLUSION AND SUGGESTION

Conclusion

The tertiary education of diplomas and undergraduates is dominated by female than male. Individuals who pursue the tertiary education are generally dominated by the heads of a family with a medium and high economic status and high education. Individuals who live in urban areas dominate the tertiary education compared to those who live in rural areas.

The result of multinomial logit estimation shows that the factors influencing significantly to the probability of choosing a diploma education are individual characteristics, such as the National Examination (UN) score and gender. The high UN score and the males will increase the probability of pursuing the tertiary education diploma, while the working condition during the secondary education will reduce the probability of pursuing the diploma. Educational support, educational background of the head of the family, and household consumption have a significant influence on the selection of tertiary education diploma. These variables will increase the probability of individual to take a diploma education compared to the decision to not pursue the tertiary education.

The variables that significantly influence the probability of the individuals in choosing the undergraduate education are only UN score for individual characteristics. Higher UN score will increase the probability of individuals to pursue the undergraduate education than not attending tertiary education at all. Household characteristics, such as the age of the head of family, scholarship or educational support, the head of the family's educational background, and the number of family dependency have a significant influence on the demand for undergraduate education. Each of these variables will increase the probability of choosing undergraduate education compared to non-tertiary one. In the variable, the total of dependencies will reduce the probability of pursuing the undergraduate education.

Policy Implications

The main results of this study illustrate the tendency of individuals to choose the tertiary education based on their characteristics and also dominated by the family characteristics. This research has some suggestions that can be implied to the real life through some policy. The suggestions for the policy implications given in this study are:

1. Educational support and scholarship for tertiary education are provided for the individuals who needs the supports and have achievements. The aforementioned educational supports are not only referred to the tertiary education, but is also provided after the graduation of the secondary education. The individuals who will graduate from the secondary education and get a guarantee of educational support or scholarship will tend to choose the tertiary education to improve their quality.
2. Educational support and scholarships for diplomas are extended through an educational support programs or scholarships specifically for the diploma. This is to increase the public interest to study in diploma level.
3. Reinforce and encourage people to follow the family planning program. It aims to reduce the fertility rate and the number of children who become a burden in each family. School's support at the elementary and secondary levels (SD and SMP) can reduce the cost of education for children aged 7-15 years old, so the burden of having children can be reduced.
4. Improve the quality of teaching and learning in secondary education (high school and equivalent) to improve the intelligence and cognitive skills of the individuals in order to prepare them to pursue the tertiary education.
5. Improve the social infrastructure such as the tertiary educational institutions but not just focus on the urban areas only. It can encourage the individuals to pursue the tertiary education in their home areas without migrating to other areas.

Suggestion

This research has conducted an estimation using multinomial logit method based on the survey data of IFLS *West* 5. However, this research has some limitations such as the assumption of giving freedom of public response to school status including private, state, or religious schools at the secondary education level. This study also does not include specifically the type of secondary education (public high school/SMA or vocational high school/ SMK). The tertiary education variables also provide freedom of response for specific categories of higher education based on the field or type and only broadly separate to diploma and undergraduate education. The noneconomic variables are the community preference, or culture and family pressure.

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