Determinants on Parents' Choice of School for their Children to the University autonomy: Case study of Vietnam

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Abstract

University autonomy becomes popular and is an irreversible trend in Vietnam. It is said to be a new breeze promoting the development of higher education in Vietnam such that Vietnam can reach to the regional standards. However, just like any other development model, university autonomy also contains certain disadvantages. From a financial perspective, the disadvantage of university autonomy is the financial burden of families having children going to college, which makes them considering in choosing a school for their children. Within an analytical framework, based on a survey of more than 1,000 households in 11 provinces and cities in Vietnam, the paper analyzed and pointed out factors influencing on parents' choice of school for their children when university autonomy model is applied in Vietnam.

Key words: higher education, tuition, student, university autonomy, Vietnam

1. Introduction

University autonomy is a growing trend of higher education in the world, and it is also considered as one of the criteria for measuring the university development. University autonomy is key to the transformation of the national higher education system. However, for many Southeast Asian countries in general and Vietnam in particular, these are an initial step. Among some of the main aspects of university autonomy, financial autonomy is applied first. With the popular trend, higher education is no longer for the elite, the demand for higher education in Vietnam soared, so the state's failure to provide the schools that parents (or students) want. Moreover, Vietnamese universities want to improve the quality, reach to the regional standards so the financial issue for universities is more urgent than ever. Financial autonomy emerged as a solution to overcome these difficulties and as a result, financial autonomy was accompanied by an increase in tuition fees, which placed a heavy burden on poor and near-poor households.

In this context, households face difficult choices: whether to send their children to college? to which schools? (autonomous schools with high quality, high tuition-free or non-financial-self-sufficient schools but low tuition rates?). The aim of this paper is to investigate the impacts of factors influencing on decisions of parents' choices of school for their children to the autonomy universities. The analysis results show that: Assessment of tuition as high; Employment after graduation; Low income; Brand awareness are groups impacting heavily on the possibility of households to choose universities for their children in terms of projectably increasing tuition fees in autonomy universities.

2. Literature review

The concept of University autonomy

University autonomy often has slightly different meanings in various higher education systems and national contexts and it is highly complex and multidimensional. In general, the university autonomy included freedom to own immovable property, opportunities to get credit, foundation of an academic structure of the programs, calculation of study fees, freedom to use financial resources as the administration sees fit (OECD 2003).

Among other things, university autonomy also refers to aspects regarding the relationship between higher education institutions and the external world (state regulations, public and private fund- ing organizations, partnerships with industry or non-governmental organizations, with international organizations, etc.). As such, uni- versity autonomy relates to both freedoms and to responsibilities and accountability (Liviu Matei and Julia Iwinska, 2014)

University autonomy consis of four dimensions: Financial autonomy, Academic autonomy, Staff autonomy and Organizational autonomy.

Table 1: Types of higher education institution autonomy and its evaluation criteria

Financial	Academic
• duration and type of funding • profitability • credit opportunities • immovable property ownership right • right to set the fees for local/EU students • right to regulate the fees for non-citizens of the EU	• right to determine the level of student recruitment and their total number, as well as their selection according to the level of preparedness • right to determine the content of programs on various levels of education • right to abolish or cancel the program • right to choose the language of instruction • right to formulate quality evaluation criteria • right to choose the core content of the program
Staff	**Organizational**
• ability to make decisions regarding the staff (recruit and dismiss academic and administrative staff) • ability to decide on the level of salary • ability to make decisions regarding professional development of administrative and academic staff	• election and dismissal of management staff • setting of management criteria • duration of the time in office of management staff • right to hire external specialists for managerial positions • right to make decisions regarding the academic structure • right to found official institution

Source: Estermann Th, el al (2011). University Autonomy in Europe II.

The factors influencing parents' decision in choosing School for their Children in university autonomy

There have been many studies on choosing schools for children of parents. Coleman (1988) explained that parents' school choice is a component of a communal process of prominent properties of societal class and networking of social interaction. When studied about factors that influence the parent decision in selecting the private/public school for their children, Noor Alyani Yaacob et al (2014) highlighted several factors, which are:

- Social background/status (parents' education, occupation, a selection of family possessions and race or ethnicity)
- Income level: Income level becomes an important factor which affects the parents' choice because tuition fees vary widely between universities
- Location: the location of the school can be best described as another factor that parents considered when they wanted to select a school
- Factors belonging to the university: school performances, school environment/facilities, school syllabus

- Teachers' quality: teachers' knowledge, interpersonal skills and technical skills gives some significant implication on the competitiveness of both types of school for some parents.

Weidner and Herrington's (2006) study found that decision of parents to choose school come from information of academic quality of school, quality of teachers, special education system, syllabus, class size, performance of school, students' achievements, financial aid, values, and safety of school. Education and income of parents was related to participation of children in a school.

In International OECD Seminar, Toespraak Frank Vandenbroucke el al (2006) confirm parents and students may vote for the school based on its reputations and the quality of teaching and learning, which is defined through academic results or social composition.

The context of many studies is the choice between public and private schools, between different schools. This article mentions the decisions of parents in the context of some universities in Vietnam operating in autonomy- where there is a change in the quality of training, tuition fees and even career opportunities for students after graduated

Through interviews with experts and households, the paper identified factors affecting school choice for parents' children in the autonomy of universities, including:

- Factors that belong to the student itself such as learning strength, hobbies, and aptitudes

- Factors reflect external conditions such as: living area (geographical location, infrastructure, traffic ...)

- Factors belonging to parents of students: qualifications, income ...

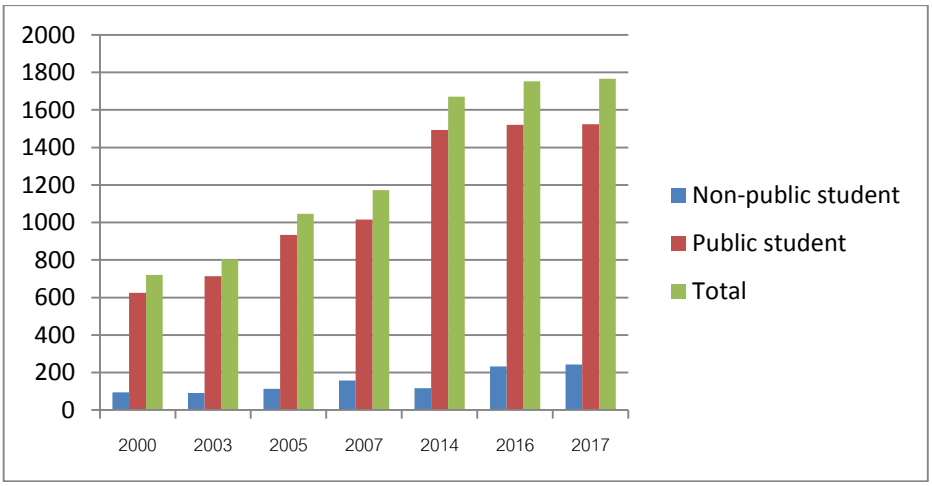
- Factors belonging to the university: reputation, tuition, the ability to find jobs after graduation of students ...

3. University autonomy in Vietnam

Vietnam is the country with the fastest growth in the scale of higher education in the world. In the past 17 years, the number of students has tripled, equivalent to an increase of 1 million students (see Figure 1).

Figure 1: Increasing trend of University students in Vietnam

Unit: thousand students



Source: Statistics from Vietnam Ministry of Education

In the context of sudden increase in demand, supply could not be met based on the state budget. Financial autonomy in higher education is considered as a solution to the problem as well as to the goal of improving the quality of higher education in Vietnam.

Vietnamese Government Resolution 77/NQ-CP allows some public universities to operate under autonomy. Up to now, there are 23 public higher education institution operating under this mechanism. Basically, autonomous schools have the right to make decisions about tuition fees (with ceiling), the number of teachers, autonomy and responsible for planning and deciding on the use of funding from lawful income of the University. Tuition fees for autonomous schools are often twice as high as those of non-autonomous schools, which have caused certain difficulties for a part of people.

4. Theoretical frameword and estimated model

4.1. Analytical model

Under university autonomy where state fund is cut, universities have to raise tuition fees in order to maintain or improve education quality. Increasing tuition means increasing financial burden on students' families and it is natural for families to consider sending their children to a college as an alternative. In this context,questions for university administrators could be what are factors that influencestudents and their families' decision on which university or college admited ;or how financial burden resulted from rising tuition affects their choice of school.To answer such questions, it is necessary to clarify the motivation and behaviors of households in the process of preparing their children for higher education at autonomous universities through a quantitative analysis and evaluating the impact of factors on student family's school choice. In this study, in order to explain the motivations that influence the probability of choosing a university for children of household, the research team used a Logit model with two purposes: one is to analyze and quantify the impact of factors on families' choice, and two is to forecast the tendency of selecting autonomous universities in the coming years, which in turn would serve as a foundationfor universities' strategicplanning.

Logit model (or binary logistic model) is often used in quantitative research to explain the relationship of a qualitative dependent variable (the variable only takes two values 0 and 1) can take multiple values with explanatory variables that can be quantitative or qualitative variables.

The logit regression model equation (Maddala, 1984) pi has the form:

$$P_i = \frac{e^{\beta_0 + \beta_1 X_{1i} + \ldots + \beta_{ki}}}{1 + e^{\beta_0 + \beta_1 X_{1i} + \ldots + \beta_{ki}}} = \frac{e^{X_i \beta}}{1 + e^{X_i \beta}}$$

After estimating, we can calculate the probabilities:

$$\hat{p}_i = \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 X_{1i} + \ldots + \hat{\beta}_{ki}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 X_{1i} + \ldots + \hat{\beta}_{ki}}} = \frac{e^{X_i \hat{\beta}}}{1 + e^{X_i \hat{\beta}}}$$

indicates the probability of event Y = 1 (Y occurs) at value X_0

The Logit model often use the following indicators:

OR ratio (odds ratio): $OR = \frac{P(Y=1/X)}{P(Y=0/X)} = \frac{p}{1-p} = e^{X\beta}$

The OR ratio indicates the ratio between the probability of event Y = 1 (Y occurs) and the probability of event Y = 0 (Y does not occur) at X_0.

ROR (risk odds ratio): $ROR = \frac{p_i/(1-p_i)}{p_0/(1-p_0)} = e^{dX.\beta}$

This ratio indicates that, providing all other factors are unchanged, when Xj increases (decreases) by 1 unit, the ROR increases(decreases) e^{β_j} or the probability that Y = 1 (Y occurs) at $X_0 + 1$ will be higher (lesser) $(e^{\beta_j} - 1)\%$ than the probability that Y=1 at X_0.

The measure of conformity is also calculated called the "correct forecast percentage". The correct forecast percentage is calculated as follows:

For each i, calculate the probability that Y receives a value of 1, that is, calculate pi = P (Y = 1/ X = Xi).

$$Gia\ tri\ du\ bao\ \ Y^* = \begin{cases} 1\ neu\ \ P_i > c \\ 0\ neu\ \ P_i < c \end{cases}$$

Usually, c = 0.5 (Wooldridge, 2008).

Comparing Y * with Y, we get the correct forecast percentage. In addition, software such as Eviews, SPSS or Stata ... also calculates the probability of expected value of Y, and the expected value when Y = 0 and Y = 1. The correct prediction rate will indicate the likelihood that Y occurs or Y does not occur, and that of the entire model as well as this ratio when the model format is only a constant (Nguyen Quang Dong, 2012).

The influence of export to p_i is calculated as follows: $\frac{\partial}{\partial X_k} p_i = p_i(1-p_i)\beta_k$

This influence level will indicate at X_0 level, when X_k increases or decreases by 1 unit, whether the probability of Y = 1 is going to increase or decrease (change)?

4.2. Variables

In this study, the variables included in the analytical model are defined as follows:

- The dependent variable Y is a qualitative variable that receives a value of 1 when the student's family has chosen a university in the path of increasing tuition or zero when not selected.

- The explanatory variables in the model characterize the assumptions and assessments of the contents that are assumed to have an impact on students' school-selection behavior. The explanatory variables are qualitative variables, including:

- Variable X_1: Variations of place of residence. X_1 gets a value of 1 when student lives in rural area and value of 0 for urban area.
- Variable X_2: Educational attainment of the household head. Educational attainment of the household head may dominate the motivation for university choice. The proficiency

variable is included in the model as a classification variable and uses four dummy variables (X_{22} - Secondary to High School; X_{23}- Intermediate; X_{24}- College and University and X_{25}- Postgraduate). Specifically, each dummy variable will receive a value of 1 when the respondent has a corresponding level and receives a value of 0 from the remaining levels.

- Variable X_3: Average household income. Expected income variable influences the head of household's choice motive. Corresponding to 5 income ranges, 4 dummy variables should be used: X_{32} with about 1-2 VND million; X_{33}: from 2 - 2.6 VND million; X_{34}: from 2.6 to 3.8 VND million; X_{35}:> 3.8 VND million). These variables take the value = 1 in the corresponding income range and take the value 0 for other income ranges.
- Variable X_4: Universities reputation. This variable indicate motivation to choose the school based on the prestige or brand of the university. If the family values the school's reputation, the X_4 variable receives a value of 1, whereas it receives a value of 0.
- Variable X_5: Employment opportunity. This variable represents the possibility of receiving a job offer after graduation based on school's reputation. It is a qualitative variable and it hasvalue of 1 when student expects to receive a job offer after graduation and value of 0 otherwise.
- Variable X_6: Student and family's perception of tuition. The variable X_6 gets value = 1 when the answer is high and very high or gets the value = 0 when the comment is considered normal, low or very low.
- Variable X_7: Learning ability. This variable demonstrates the motivation to choose a university based on learning ability of students. The variable X_7 takes value = 1 when learning ability plays a role in selecting universities and value = 0 when universities selecting behavior is not based on student's learning ability.
- The Y- dependent variable indicates the household's ability to select universities in the context of increasing tuition fees and the impact of the above-mentioned school-selection engines relative to the explanatory variables. The variable Y is a binary variable, receiving value = 1 when the family has a choice or = 0 when no choice is made.

Thus, the Logit model is: $P_i = \frac{e^Y}{1+e^Y}$, in which:

$$Y= a_0+a_1X_1+a_2X_{22}+a_3X_{23}+a_4X_{24}+ a_5 X_{25} + a_6 X_{32} + a_7X_{33}+a_8X_{34}+a_9X_{35}+a_{10}X_4 + a_{11}X_5+ a_{12}X_6 +a_{13}X_7.$$

5. Empirical results

5.1. Data

The data source for our models is compiled from the results of the survey on access to higher education services for families that have children entering university. Questionnaire was sent to among 1200 households and got 1185 respondents, in which the number of valid respondents are 1180 (Dang Thi Le Xuan et al, 2018).

5.2. Estimation results

We used SPSS 22 software with Backward Stepwise (Wald) method to run our model and the results are display in Table 1 of appendix.

According to the results performed in the logistic regression analysis mentioned above, the value of sig. level is significant with all variables <0.05. The explanatory variables in the Binary logistic model are correlated with the dependent variables with the reliability of the regression coefficients reaching over 95%. The Nakelkerke coefficient R2 = 0,509 shows that the explanatory variables only explain > 50% of the variation of the dependent variable. Test results indicate the value of Sig. <0.01, proving that the general model is properly formatted. With the correct forecasting rate of nearly 80%, the model is quite likely to forecast correctly. Omnibus test shows Sig. value < 0.01, showing that the correlation between dependent variable and independent variables is statistically significant with reliability over 99%. Considering the sign of the estimated coefficients we see are consistent with the expectation. From the above test results it can be concluded that the model ensures reliability and can be used in analysis and forecast.

Discuss model estimation results

Assess the influence of factors

To assess the influence of factors we need to start from the base case where all explanatory variables receive a value of 0. This option means a combination of the following factors: Respondents are living in urban areas, the education level of household head is elementary whose income is below 1 VND million. Choosing a university is not based on the brand, not considering job opportunities after graduation, not based on the child's learning ability. These respondents believe that tuition fee is not high. A table is conducted in order to calculate the influence of factors as below:

Table 2. Effect of variables on field selection probability in terms of increasing tuition fees

Variables	Initial value (X_0)	$\hat{\beta}$	$\hat{\beta} X_0$	$p_0(1-p_0)*\hat{\beta}$	p_1
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
X_1	0	-0.599	0	-0.0361	0.8888
X_{22}	0	-0.379	0	-0.0228	0.9088
X_{23}	0	0.542	0	0.0326	0.9616
X_{32}	0	-0.856	0	-0.0515	0.8608
X_{33}	0	-0.520	0	-0.0313	0.8964
X_{35}	0	-0.480	0	-0.0289	0.9000
X_4	0	3.089	0	0.1860	0.9969
X_5	0	-1.668	0	-0.1004	0.7330
X_6	0	-2.096	0	-0.1262	0.6415
X_7	0	-0.719	0	-0.0433	0.8764
Intercept	2.677	2.677	2.677		
	Total: log (p_0/(1-p_0))		2.677		

Source: Authors calculated from estimation model

$$\text{From: } \log(p_0/(1-p_0)) = 2.677 \rightarrow \frac{p_0}{1-p_0} = EXP(2{,}677) = 14.5414 \rightarrow p_0 = 0.9357$$

P_0 is the probability of selecting the field corresponding to the variable vector explained as vector 0.

In Table 2, the value in column (5) shows: At the initial value - base value (Le Huy Duc, 2019), when the value of a variable increases by 1 unit (in this case, it is converted from value = 0 up value = 1) with other variables remain constant, it will change the probability of choosing university. The changed value is positive (increase) or negative (decrease) depends on the sign of the regression coefficient. The initial value (corresponding to probability p_0) is determined at the base value (the value of the independent variables are equal to 0). Thus, the value of column (5) determines the change in probability of selecting the university corresponding to the change of the corresponding variable from the value 0 to the value 1. Hence, with the initial probability of selecting university $p_0 = 0.9357$, when certain variable j changes provided that other variables remain the same, the probability of selecting university changes from p_0 to p_1, where p_1 is determined by the following formula:

$$p_1 = \frac{p_0 * e^{\beta_j}}{1 - p_0(1 - e^{\beta_j})}$$

The results are illustrated by column (6) in Table 2.

From the above analysis, it is possible to set up a table to compare the degree of influence of the factors on the probability of choosing a university by the students' parents in terms of projectedly increasing tuition fees of the universities themselves.

Table 3. Level of impact of factors

	Variable influence	B	EXP(B)	Probability P_1 (initial probability p_0= 0,9357)	Increase / decrease level (%)	Order of influence
1	X_1 - place of residence	-,599	,550	0,8888	-4,69	**6**
2	X_{22}- Secondary, high School	-,379	,685	0,9088	- 2,69	**9**
3	X_{23}- Intermediate Level	,542	1,720	0,9616	+ 2,59	**10**
4	X_{32}- Income: 1-2 VND Mi	-,856	,425	0,8608	- 7,49	**3**
5	X_{33}- Income:2-2.6 VND Mi	-,520	,595	0,8964	-3,93	**8**
6	X_{35}- Income:> 3,8 VND Mi	-,480	,619	0,9000	-3,57	**7**
7	X_4- Universities Reputation	3,089	21,951	0,9969	+6,12	**4**
8	X_5- Employment Opportunity	-1,668	,189	0,7330	-20,27	**2**
9	X_6- Perception of tuition	-2,096	,123	0,6415	-29,42	**1**
10	X_7 - Learning ability	-,719	,487	0,8764	-5,93	**5**

Source: Authors calculated from estimated model

Predict the possibility of school selection

Logit model -base on the basis of survey data of households with children preparing to take university entrance exams in the Northern region of Vietnam – ismeaningful to analyze the factors affecting the ability to choose. Moreover, it also can be used for forecasting purposes, thereby serving as a basis for the enrollment policy of autonomous universities. The prediction is made according to scenario analysis techniques. From the actual survey in localities and model estimation results, we make forecasts on the following 3 scenarios:

Scenario 1 (Low option): This scenariocorresponds to the condition: the family resides in the countryside, has a low income, the head of household is lower secondary school and thinks that tuition is high. Calculated results show that the probability of choosing an autonomous university is 54.2%, meaning that on average, only 54.2% of parents agree to select autonomous schools in the roadmap for increasing tuition. his children go to school. Hence, the increase in tuition fees between now and 2021 is becoming a worrying burden for low-income rural students and families.

Scenario 2 (Normal option)

Scenario 2 is assumed to be basically the same as Scenario 1, except for the value of one variable X6, while the other variables have values completely identical to the base scenario 1 above. In this scenario, X6 gets a value of 0, meaning that households believe tuition is not high due to their expectations of state support and school scholarships. With this scenario, the probability of selection of households increases: 0.9059, or nearly 90.6%.

Scenario 3 (High option)

Scenario 3 corresponds to the following factors: The head of the household level is intermediate, the average income is over 3.8 VND million/month, with consideration base on the school brand, with the expectation of having a job soon after graduation, taking child's learning ability into account and believing that tuition is not high. With the values of the explanatory variables as described, the probability of selection for households increased by: 98.46%. It is almost that most families in urban areas, with an income of over 3.8 million VND/month, agree to choose branded schools despite these school are projectedly increasing tuition fees of the universities themselves.

6. Conclusion and recommendations

6.1. Conclusion

The model developed based on survey data from 1180 households was tested as high reliability and can be used in analysis and forecasting. According to Table 2., there are 10 variables classified into 7 groups impacting on the possibility of households to choose universities for their children in terms of projectably increasing tuition fees in autonomy universities. The factors includes:1) Assessment of tuition as high; 2) Employment after graduation; 3) Low income; 4) Brand awareness; 5) Consideration of learning capacity; 6) Residence area; 7) High income; 8) Average income; 9)Head of household'sloweducation level; 10)Head of household'saverage education level with the descending order of significance of effect. Factors negatively influence on the possibility to choose university include: perceivedhigh tuition fees, low income, taking into account graduate employment opportunities and considering children academic performance. Factors positively effect on the possibilityto choose university are: average and high income,

perceived low tuition, brand awareness. The factor "place of residence" does not show a clear direction of effect towards university choosing behavior.

The findings from 3 scenarios analysis shows that although there are differences between population groups divided by 7 factors consideredin the model, almost scenarios forecast a high probability of university selection, from 90.6% (scenario 2) to 98.46% (scenario 3). In contrast, scenario 1 has a lower probability of 54.2%. However, when the financial aid from the Government or University is added, the probability of school choosing increases to 90.6% (Scenario 2).

In summary, quantitative analysis based on the logit model indicates that although the majority of respondents perceive the projectably increasing tuition fees in autonomy universitiesas high (accounting for 71.8% of the total respondents), especially for low- and middle-income groups, the probability reflecting the possibility of households to choose these schools for their childrenis not low because they expect in the school brand names, employment opportunities after graduation, financial aid from the State, and children academic performance, etc.

Therefore, the study results suggest universities to ensuretheir commitments to these expectation of households, and to provide households with information for their better understand of learners'benefits and responsibilities during the course. Moreover, autonomous universities could expand financial aid opportunities for students in order toencourage the school choosing behavior of students and their families.

6.2. Recommendations

As usual, financial barriers have also appeared in parents' university choice decisions. High tuition fees are the biggest barrier for Vietnamese students to access large universities today. Financial autonomy is considered an effective policy tool to improve the performance of the school system in Vietnam now. However, without appropriate supplementary policies, financial autonomy will be the cause of social inequality in access to higher education, a mechanism that prevents many capable students from going to college or cannot go to the schools they desire.

However, parents or students themselves also appreciate the prestigious schools, the ones with good training quality and giving them good job opportunities after graduation. Therefore, improving the training quality of universities is also derived from social needs. Maintaining low tuition rates with low quality is also against the social needs, contrary to the development trend. Therefore, higher education service - which are considered to be highly invested - need to be paid for by the beneficiaries.

In this case, student credit is recommended as the most suitable solution for both the university and the student: the school has revenues to improve the quality of training. Students may enjoy well-trained service and they have good job opportunities and high repayment capacity.

And student credit will be the future study of the newspaper authors!

Appendix

Table 4. Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 4[a]	X1	-,599	,281	4,540	1	,033	,550	,317	,953
	X_{22}	-,379	,188	4,075	1	,044	,685	,474	,989
	X_{23}	,542	,197	7,585	1	,006	1,720	1,169	2,529
	X_{32}	-,856	,203	17,755	1	,000	,425	,285	,633
	X_{33}	-,520	,232	5,033	1	,025	,595	,377	,936
	X_{35}	-,480	,174	7,626	1	,006	,619	,440	,870
	X_4	3,089	,269	131,421	1	,000	21,951	12,945	37,223
	X_5	-1,668	,191	76,438	1	,000	,189	,130	,274
	X_6	-2,096	,184	130,412	1	,000	,123	,086	,176
	X_7	-,719	,162	19,819	1	,000	,487	,355	,668
	Constant	2,677	,414	41,730	1	,000	14,538		

a. Variable(s) entered on step 1: X1, X22, X23, X24, X25, X32, X33, X34, X35, X4, X5, X6, X7.

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