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Predicting Student Sensitivity to Tuition and Financial Aid

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Over the last two decades, a substantial body of research has examined student responsiveness to tuition increases and financial aid offers in postsecondary educational decisions (see, for example, Heller, 1997; Leslie and Brinkman, 1988). Another major research interest in higher education literature is student behavior in choosing a postsecondary educational institution (see, for example, Hossler, Braxton, and Coopersmith, 1989; Paulsen, 1990). As the costs of postsecondary education have risen, policy analysts and scholars have paid increasing attention to the impact of tuition costs and student financial aid on access to postsecondary education, college matriculation decisions, and subsequent student persistence in postsecondary education (McPherson and Shapiro, 1991, 1998; Mumper, 1996; St. John, 1990a, 1990b; St. John, Starkey, Paulsen and Mbaduagha, 1995; Weiler, 1996). Institutional policy-makers are concerned about student recruitment and enrollment on the one hand and institutional financial health on the other, while state and federal policy-makers are worried about the effective use of public funds to meet national interests such as access, choice, and attainment in postsecondary education.

Policy analysts and higher education researchers have recently become concerned about whether students attend college and which schools students attend, because the postsecondary destinations of students are related to student educational attainment and career development (Hearn, 1988, 1991; Pascarella and Terenzini, 1991). Thus, from a social equity perspective, college tuition and financial aid have become serious policy issues.

It is believed that the influence of perceived college tuition rates and financial aid availability becomes important during student college choice process and reaches the highest level in the senior year of high school (Hossler and Gallagher, 1987; Hossler, Schmit, and Vesper, 1999). However, not until the last few years has research on the impact of college tuition and financial aid been linked with models of student college choice. Savoca (1990) integrated price impact into her research on student application behaviors to college and concluded that this integration would result in estimating student price responsiveness more accurately. Meanwhile, recent research implies that tuition pricing and financial aid offers exert different impacts on student postsecondary participation decisions (St. John and Starkey, 1995). The purpose of this study is to identify the pre-

Research Perspectives

dictors of student sensitivity to college tuition and financial aid and to differentiate the impacts of these predictors on student price sensitivity in the student college choice process.

This study is concerned with both student college choice and student price responsiveness; therefore, the research in both domains form the conceptual framework for this study. Using Hossler and Gallagher's (1987) three-stage model of student college choice, the present study focuses on student price sensitivity to tuition and financial aid in the choice phase of their college selection process.

Three theoretical lines of research are prevalent in student college choice literature: sociological research on status attainment, econometric studies on investment decision making, and combined models of college choice. From a sociological perspective, the role of background characteristics such as gender, ethnicity, parental income, parental education, as well as student grade point average are commonly used in studies of status attainment (Coleman, Hoffer and Kilgor, 1982; Hanson, 1994; Karen, 1991; Sewell, Haller, and Ohlendorf, 1970). Researchers have also demonstrated that those same background factors can exert strong direct and indirect influences on student academic achievement and educational plans which ultimately influence student educational routes (Hearn, 1988, 1991; Hossler and Stage, 1992).

In addition, this study draws on constructs from the economics of education. Economists base their models of postsecondary participation and college choice on human capital theory. Individuals are assumed to make postsecondary educational decisions based on variables such as the expected costs, the expected benefits, and the utility of educational options. Therefore, financial characteristics of educational institutions (e.g., tuition, financial aid, housing, and cost of commuting) are frequently included. Several studies of postsecondary participation and college choice have been conducted employing some or all of these variables to study outcomes of student college choice (Bishop, 1977; Kohn, Manksi, and Mundel, 1976; Manski and Wise, 1983; McPherson and Shapiro, 1991; Parker and Summers, 1993). More recently, some economists have argued that progress in research on college choice is possible only if subjective data are integrated into empirical analysis (Manski, 1993). Catsiapis (1987), for example, included student expectations of parental contribution into student college choice modeling and demonstrated that this factor was significant in student educational investment decisions.

This study also benefits from the new approaches on student price responsiveness. Traditionally, researchers of student price responsiveness assume that students respond to a single net price. However, during the last decade, researchers have asserted that students respond differently to a set of prices

and subsidies in their postsecondary decision making. Furthermore, the responsiveness of students from different family backgrounds is highly related to the types of subsidies available to them (St. John and Starkey, 1995).

Finally, this study is also informed by combined models of student college choice. Combined models have the advantage of focusing in greater detail on postsecondary educational decision-making. These models use constructs from both status attainment models from sociology and from the economics of education (Hossler, Braxton and Coopersmith, 1989; Paulsen, 1990). This study uses variables typically associated with the search and choice phases of student college choice (Hamrick and Hossler, 1996; Schmit, 1991).

According to Hossler and Gallagher (1987), the *search stage* of college choice entails looking for possible colleges to consider attending while simultaneously learning more about the relevant characteristics of colleges (e.g., size, cost, social atmosphere, special academic programs, campus facilities, etc.). The *choice stage* involves determining the set of colleges to which one applies and the evaluation process that leads to a decision to attend a specific institution. Information gathering typically begins during the search stage of college choice and continues during the choice stage. Information about postsecondary education in general, and specific information about financial aid programs, leads to more accurate estimates about the affordable options for the students. For example, Flint (1993) found that student awareness of financial aid programs expands the institutional range from which they make their college choices.

The present study focuses on student sensitivity to tuition and financial aid. In addition to the commonly used variables, such as student family background characteristics and student-ascribed characteristics, we include student academic characteristics, student perceptions, measures of student institutional awareness, and familiarity with financial aid programs in the present model. Specifically, the research questions of interest are as follows: 1) What variables are associated with student price sensitivity? 2) Are there any differences in how these variables interact with college tuition and financial aid? 3) To what extent do student family characteristics and student-ascribed characteristics influence student price sensitivity? 4) To what extent do student perceptions and student institutional connections influence student price sensitivity?

Research Design

This study drew its sample from all students attending 21 high schools in Indiana. A cluster design was used to select schools to assure that the sample represented adequate numbers of ethnic minorities, students at all levels of socioeconomic status, and rural as well as metropolitan high schools (Borg and Gall, 1989). The total sample of students and parents was surveyed ten times between the students' freshman (1986-1987) and se-

nior years (1989–1990) in high school. After accounting for non-responding students and parents, and missing answers to the questions of research interest, a sample of 296 students was analyzed. The sample consists of 49% male students and 6% students of color (Table 1).

In this study, we use separate indicators to measure student price sensitivity to tuition and financial aid. The three dependent variables were: the importance of low tuition, the importance of financial aid, and the influence of the financial aid offer in changing students' decisions about which institution to attend. These questions were asked of twelfth grade student respondents. The selection of independent variables drew upon concepts embedded in economic, sociological, and combined models of student college choice.

The independent variables include student family background characteristics, student academic characteristics, student perceptions of family financial support, and student connections with intended postsecondary institutions and their awareness of financial aid programs. The variables included in this study are described in Appendix A. In total, all variables for this study were drawn from questions asked in the ninth and twelfth grade surveys. Variables such as student gender and student family background were derived from student and parent questionnaires when students were at ninth grade. All other variables were drawn from the student survey conducted when students were in the twelfth grade. A unique identification number assigned to each participating student linked the information from these two questionnaires.

We used sequential multiple regression techniques to identify predictors of student price sensitivity to tuition and student financial aid. The variables concerning student-ascribed and family background, student academic achievement and expectation, student institutional information and awareness of financial aid programs, and student expectation and confidence about family financial support were included in regression analysis sequentially. The analytical strategy employed in this study is very similar to those used by some other researchers (Hearn, 1988). It enabled us to examine the role of different blocks of independent variables in determining student price sensitivity.

Limitations

Several limitations should be kept in mind in interpreting the findings from this study. First, sampling solely from the state of Indiana limited the generalizability of the findings. Family income and educational levels, which are variables directly related to student college aspiration and participation, rank in the bottom quartile for the state of Indiana from a national comparison perspective (Hossler, Schmit, and Vesper, 1999). This may subtly limit the generalization of the findings to states with different socioeconomic contexts. Also, Indiana is not as ethnically diverse as the many other states, including the nearby

TABLE 1
Means, Standard Deviations, and Correlations of Independent and Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Male	1.000														
2. Student of color	-.011	1.000													
3. Father's education	.032	-.024	1.000												
4. Mother's education	-.039	-.115	.560	1.000											
5. Parental income	-.046	-.069	.425	.311	1.000										
6. High school GPA	-.059	-.053	.157	.131	.116	1.000									
7. Educational expectation	.000	-.056	.299	.258	.234	.399	1.000								
8. Financial aid information	-.001	-.051	-.036	.038	.110	.133	.009	1.000							
9. Institutional information	-.031	-.162	.107	.143	.164	.272	.260	.385	1.000						
10. Requesting information	-.105	.067	.006	.059	.048	.120	.097	.075	.308	1.000					
11. Certainty about ability to pay	.127	-.014	.198	.177	.259	.066	.120	.282	.121	-.126	1.000				
12. Expectation of contribution	.002	-.124	.305	.239	.431	.069	.160	.078	.041	.001	.324	1.000			
13. Importance of low tuition	-.183	.038	-.216	-.127	-.240	-.227	-.296	-.141	-.258	-.117	-.279	-.235	1.000		
14. Importance of financial aid	-.098	.024	-.248	-.154	-.316	-.100	-.080	-.144	-.112	.070	-.419	-.394	.472	1.000	
15. Influence of aid offer	-.111	.174	-.131	-.032	-.145	-.084	-.022	-.092	-.128	.139	-.329	-.300	.268	.374	1.000
Means	.49	.06	5.11	4.90	6.72	2.20	3.53	2.95	3.49	2.51	3.41	2.70	3.39	4.18	2.43
Standard Deviations	.50	.23	1.21	1.16	2.40	.65	1.03	.87	.65	.94	1.27	.98	1.29	1.21	.98

n=296

See Appendix A for measurement of variables.

states of Illinois, Michigan, and Ohio (Hossler, Schmit, and Vesper, 1999). The sample size of students of color was not large enough to examine the differences among different ethnic minority groups in price sensitivity. In addition, the complexity of the longitudinal survey on many aspects of student college choice process leads to the relatively small sample size for this study, although the current sample is a reasonable representation for the high school students in Indiana (Hossler, Schmit, and Vesper, 1999).

Results

Table 1 contains the means, standard deviations, and correlations for all independent and dependent variables. The simple correlation in Table 1 reveals a few interesting points. First, the independent variables are not highly correlated, so that in some sense, multi-collinearity of the independent variables is less of a concern in this regression analysis. Second, the three dependent variables appear to be correlated with different independent variables suggesting that different variables may relate to student sensitivity to tuition costs and financial aid. For instance, the predictors for student sensitivity to financial aid are not the same as those related to the influence of the financial aid offer on student final institutional choice for attendance.

The Importance of Low Tuition

Table 2 presents the results from the first sequential regression in which student-reported importance of low tuition was the dependent variable. The results indicate that student background variables provide a modest explanation of the variance of student sensitivity to the importance of low tuition in college choice. Student gender, father's education, and parent income are statistically significant. Male students are more likely to have a significantly lower reported importance of low tuition than are female students. Father's educational level is negatively related to student concern about tuition costs. As father's educational level increased, student-reported importance of low tuition decreased. When parent income increased, student-reported importance of low college tuition decreased significantly.

In the second sequential regression analysis, the inclusion of student high school GPA and educational expectation improved the model significantly. In fact, this block of variables led to the largest improvement in this sequential analysis. High school GPA and educational expectation significantly reduced student concern about tuition costs. Those students who had high GPAs and higher educational expectations reported lower levels of importance of low tuition in their college choice.

In the third step, information-related variables were included. Although the predicting power of the model increased modestly, the "information about institutions" variable alone was statistically significant. That is, students who had more information about institutions were less concerned about the importance of low tuition.

TABLE 2
Standardized Coefficients When Dependent
Variable Is Importance of Low Tuition

Variables	Step 1	Step 2	Step 3	Step 4
1. Male	-.187***	-.194***	-.200***	-.179***
2. Student of color	.020	.009	-.005	-.008
3. Father's education	-.128*	-.078	-.098	-.073
4. Mother's education	.000	.028	.043	.061
5. Parental income	-.193***	-.165***	-.141**	-.075
6. High school GPA		-.136**	-.097	-.099*
7. Educational expectation		-.186***	-.167***	-.154**
8. Financial aid information			-.064	-.012
9. Institutional information			-.124*	-.131**
10. Requesting information			-.062	-.088
11. Expectation of contribution				-.167***
12. Certainty about ability to pay				-.104*
R ²	.109	.175	.206	.243
R ² change	.109***	.066***	.012**	.037***

n=296

p* < .1, *p* < .05, ****p* < .01, two-tail test

Finally, we included student expectation of parental financial contribution and student certainty about family ability to pay. The results indicate that students who expected higher levels of parental contribution were less worried about college tuition, and those who were more certain about family ability to pay were less concerned about college tuition. It is worthwhile to note that when the variables such as student academic characteristics, information-related variables, and student perceptions of family financial support were included, student background variables such as family income became statistically insignificant. This suggests the effects of family income on student tuition sensitivity, in some way, were mediated by student academic characteristics, information awareness, and student perceptions of family ability of financial support.

The Importance of Financial Aid

In the regression of the independent variables upon student-reported importance of aid, the results reveal a different pattern (Table 3). The results from the first step regression indicate the effects of student gender, father's education, and family income on student-reported importance of financial aid in their college choice. Male students are less sensitive to financial aid than are

TABLE 3
Standardized Coefficients When Dependent Variable Is Importance of Aid

Variables	Step 1	Step 2	Step 3	Step 4
1. Male	-.106*	-.111***	-.100*	-.064
2. Student of color	-.001	.000	-.018	-.031
3. Father's education	-.131*	-.132*	-.142**	-.092
4. Mother's education	-.003	-.005	-.003	.030
5. Parental income	-.264***	-.267***	-.250***	-.116*
6. High school GPA		-.076	-.060	-.064
7. Educational expectation		.054	.048	.074
8. Financial aid information			-.104*	-.012
9. Institutional information			-.048	-.066
10. Requesting information			.099*	.057
11. Expectation of Contribution				-.276***
12. Certainty about ability to pay				-.241*
R ²	.127	.132	.153	.285
R ² change	.127***	.005	.021*	.131***

n=296

p* < .1, *p* < .05, ****p* < .01, two-tail test

their female counterparts. Father's education level reduced the reported importance of financial aid in student college choice. Parental income can significantly reduce the importance of financial aid in the student college choice decision.

Interestingly, the second sequential regression demonstrated that student high school GPA and educational expectation were not significant in predicting student sensitivity to financial aid. In fact, unlike the sensitivity to tuition, there was no significant improvement of the model in predicting student sensitivity to financial aid when high school GPA and educational expectation were included.

The results from the third step show that student information about financial aid programs was negatively related to the reported importance of financial aid. That is, students who had more information about financial aid programs thought financial aid was less important in their college choice. In addition, students who were more actively requesting information from postsecondary institutions appeared to think financial aid more important in their college choice.

Finally, student expectation of parental contribution to educational expenses and students' certainty that they will be able to pay for college are negatively associated with student sensitivity to financial aid. When students expect a larger con-

tribution to their educational expenses from parents, they tend to regard financial aid as less important. As student confidence about family ability to pay increases, the importance of financial aid decreases. The inclusion of student expectation and certainty about family ability to pay improved the fit of the model significantly. The gender difference in the sensitivity to financial aid disappeared in the final step suggesting the gender difference is largely the result of student expectation on parental financial contribution and student certainty of family ability to pay. The absence of the significance of "requesting information" in the fourth step implies that requesting information in the choice phase may be a signal of those students' lack of confidence of family financial support and ability to pay.

The Influence of Financial Aid in Changing College Cost Decisions

Table 4 provides the results from the sequential regression when "the influence of financial aid in changing a student's college choice decision" was the dependent variable. In addition to the effects of student gender, father's education, and family income, the minority student status seem to be positively related to the effects of financial aid on changing student final choice. That is, students of color appear to be more likely to change their final choice of institution for attendance based upon the effect of financial aid offers.

TABLE 4
Standardized Coefficients When Dependent Variable Is Influence of Aid Offer

Variables	Step 1	Step 2	Step 3	Step 4
1. Male	-.107***	-.112**	-.098*	-.067
2. Student of color	.173***	.171***	.140**	.127**
3. Father's education	-.125*	-.128*	-.126*	-.081
4. Mother's education	.089	.085	.084	.113*
5. Parental income	-.112*	-.116*	-.104	.018
6. High school GPA		-.086	-.071	-.075
7. Educational expectation		.066	.072	.095
8. Financial aid information			-.036	.046
9. Institutional information			-.126*	-.143**
10. Requesting information			.164***	.127**
11. Expectation of contribution				-.241***
12. Certainty about ability to pay				-.224***
R ²	.072	.079	.111	.217
R ² change	.072***	.007	.032**	.106***

n=296

* $p < .1$, ** $p < .05$, *** $p < .01$, two-tail test

Student academic characteristics are not significantly related to the effect of financial aid offers, as shown in the results of the second step.

The results from the third step indicate that students with more institutional information were less likely to be influenced by financial aid offers in their final decision. It also shows that how frequently students requested information from the institution is one of the significant indicators that students may change their institutional choice based upon financial aid offers. The more actively engaged a student is in requesting information about colleges, the stronger the influence of financial aid offers tend to be.

The different effects of institutional information students already had and the information gathering behavior in which students were currently involved reveal an intriguing aspect of student college selection process. As our analysis has demonstrated, student information-requesting behavior in the choice phase may, in part, signal student concern about family financial support and ability to pay. In addition, those students engaged in the information-requesting process in the final phase of college choice were more likely to be choosing institutions largely based on financial concern. On the other hand, those students already with a higher level of institutional information may treat institutional characteristics other than financial considerations as more important and are more likely to make early final decisions.

Finally, student expectation of parental contribution to college costs and student certainty about family ability to pay are negatively associated the influence of financial aid. As we anticipated, the higher the expectation, or the higher the level of certainty, the less likely students were to indicate that a large financial aid offer would change the decision about which institution to attend.

Discussion

From the results of the sequential regressions in this study, we can see that student perceptions and institutional connections can increase the predictive strength of the model significantly. Moreover, the perception variables turn out to be among the most significant predictors in student price and financial aid sensitivity. These findings support Manski's observation that, in empirical analysis, economists should combine college choice data with interpretable subjective data on expectations and preferences to better understand the student college choice process (1993). Indeed, student subjective college expectations and preferences are not only important in understanding college choice behavior but also useful in understanding student sequential college experience and persistence in college (Braxton, Vesper, and Hossler, 1995; St. John, Paulsen, and Starkey, 1996).

The three perspectives (sociological, econometric, and combined models) can clearly help to explain our findings on

“The more actively engaged a student is in requesting information about colleges, the stronger the influence of financial aid offers tends to be.”

student price sensitivity in college choice. Family background and student-ascribed characteristics exert a significant influence on students' reported importance of low tuition and financial aid in their college choice process. Students from families with higher parental income, as conventionally believed, appear to have fewer barriers to enter higher cost institutions and to rely less on financial aid in college choice. Student gender plays a role in responding to the importance of low tuition. Female students are more likely to think low tuition is important than do their male counterparts. However, in the final step regression, parental income is no longer significant in predicting student sensitivity to college tuition while it remains significant as a predictor of financial aid. We posit that parental income may exert an indirect impact on student price sensitivity mediated through student perceptions of parental ability to pay and students' own certainty of their own ability to pay higher tuition charges.

The results also lend support to the econometric perspective. Student expectations of parents' financial contribution and student certainty about family ability to pay are significant in all three cases. This result suggests that, for the most part, students behave rationally in their own college investment decisions (Catsiapis, 1987). As long as their parents can make larger contributions to the expenses of their college education, students tend to prefer higher-cost institutions and tend to think financial aid is less important in their college decisions. They are also more likely to be unaffected by financial aid offers in their choice of institutions to attend.

Students' perception of family ability to pay can also significantly reduce the importance of low tuition and financial aid in their college choice. Therefore, they are more likely to apply for admission to institutions with higher net costs. The results, however, raise an interesting question since parental income is not correlated with tuition costs in the more complex model presented in Table 3. It is possible that students' perceptions of their parents' ability to pay or of their own ability to pay are indirect measures of family income. Instead, these relationships could also be indicators of parental willingness to sacrifice for college (regardless of family income) and of the extent to which students have saved and planned for the financing of their own education. The results suggest that parental willingness to contribute, regardless of family income, has some effect on sensitivity to tuition and financial aid.

In addition, the combined model offers insights into the student college choice process. The amount of information students possess about their intended institution can significantly reduce student sensitivity to tuition. The information-seeking behavior of students is a significant predictor of the influence of financial aid offers on a student's final institutional choice. In this case, requesting information may imply a lower level of con-

confidence of family financial support and ability to pay. On the other hand, it may also signal a level of student price sensitivity that operates independently of family income as students choose institutions with more financial consideration.

These results also point to the separation of different indicators of student price sensitivity. In this study, student price sensitivity to tuition and financial aid tends to be associated with different predictors. As St. John and others (1995) have suggested, college tuition and financial aid are not interchangeable in student postsecondary participation decisions. Therefore, they can exert different impacts on student behaviors regarding application to and enrollment at postsecondary institutions. In our analysis, for example, student academic characteristics tend to be significantly associated with tuition sensitivity but not with financial aid sensitivity.

We also find that financial aid offers exert a differential impact on students' final choice of postsecondary institutions, but that this is mediated by student race/ethnicity. Financial aid awards seem to attract students of color to attend specific institutions. In general, however, information about the intended institution tends to significantly reduce the possibility that students will be affected by financial aid offers. A possible explanation of this phenomenon is that students in twelfth grade have "invested" in a specific institution do not want to make changes in the final steps of this college choice process.

Student perception of family financial support is directly correlated to student sensitivity to college tuition and financial aid. Research suggests parents can play a significant role in student college aspiration and choice (Hossler, Schmit, and Vesper, 1999). Further exploration of the aspects of family structure and parenting style on student perception formation will enrich our understanding of the interdependence of family and parental roles in student college participation pattern and contribute to more effective postsecondary educational policy-making. Information on postsecondary education in general, and financial aspects in particular, were closely related to students' postsecondary educational choices, but in what way information makes a difference requires further research (Hossler, Braxton and Coopersmith, 1989). To examine the impact of the format and content of college information and the effects of timing when information is available will benefit both institutional practice and governmental policy intervention.

Implications

The results from this study provide several interesting insights into the college decision making process and the impact of tuition costs and financial aid upon student college choice. The results suggest that, by and large, students behave rationally in their decisions. As family income or perceptions of parental willingness to pay for their college education increases, their sensitivity to tuition costs and to financial aid decreases. Finally, we

found that women appeared to be more sensitive to tuition costs than men. In addition, the gender difference in the sensitivity to financial aid diminished when students' perception of family financial support was controlled. This may suggest that female students perceive some gender bias in family willingness to pay for their formal education after high school.

The results also indicate that information about specific institutions, about postsecondary education in general, and about financial aid can influence tuition and aid sensitivity. The relationships, however, are complex and difficult to interpret. Information gathered by students about their prospective institution is negatively associated with tuition sensitivity. The most plausible explanation is that students are more likely to thoroughly investigate the institutions about which they are most serious. Once they have come that far in the college choice process, tuition may not be as important as other institutional characteristics. On the other hand, requesting information about colleges (i.e., colleges in general) is strongly and positively associated with the influence of financial aid offers on students' enrollment decisions. Students involved in active information gathering in their final stage of the college choice process seem to be selecting colleges based more upon financial reasons, either because they lack financial confidence in their ability to pay or because greater financial sacrifice is more painful.

Overall, these findings suggest that price sensitivity is complex. The results suggest that public policy makers may be able to influence student access and choice by providing more information about colleges and universities. Information about financial aid programs may also be helpful. Parental education and family income alone do not explain price sensitivity. Subjective factors such as students' perception, expectations, and preferences interact and can play dominant roles in shaping student college choice and enrollment decisions. The formation of these subjective factors of students, therefore, merits further investigation. The results also reinforce what many financial aid administrators already know: that ability to pay for college and willingness to pay are not perfectly correlated with each other.

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APPENDIX A
Measurement of Dependent and Independent Variables

A. Measurement of dependent variables

- 1) Importance of attending a low tuition institution/importance of the financial aid:
 - a. not important
 - b. somewhat important
 - c. undecided
 - d. important
 - e. very important
- 2) Extent to which financial aid offer can change student decision about the institution to attend:
 - a. to no extent
 - b. to a small extent
 - c. to some extent
 - d. to a great extent

B. Measurement of independent variables

1) Student family background variables

a. Father's and mother's education:

- (1) < 8th grade
- (2) 8th grade
- (3) some high school
- (4) high school
- (5) some college
- (6) college
- (7) post-college

b. Parental income:

- (1) <10,000
- (2) 10,000-14,999
- (3) 15,000-19,999
- (4) 20,000-24,999
- (5) 25,000-29,999
- (6) 30,000-34,999
- (7) 35,000-39,999
- (8) 40,000-44,999
- (9) 45,000-49,999
- (10) >49,999

2) Student-ascribed characteristics (Gender): (0) male; (1) female

3) Student academic characteristics

a. Grade point average in high school:

- (1) C- to C+
- (2) B- to B+
- (3) A- to A+

(Continued on following page.)

APPENDIX A
Measurement of Dependent and Independent
Variables (cont.)

- b. Student education expectation:
 - (1) vocational-technical
 - (2) two-year college
 - (3) four-year college
 - (4) master's degree
 - (5) professional degree

- 4) Student perceptions of family financial support
 - a. Certainty of the ability to pay:
 - (1) uncertain
 - (2) somewhat certain
 - (3) certain
 - (4) very certain

 - b. Student expectation of parent contribution to educational expenses:
 - (1) none
 - (2) 1/4
 - (3) 1/2
 - (4) 3/4
 - (5) all

- 5) Student connections with intended postsecondary institutions
 - a. Information about institution/information about financial aid programs:
 - (1) not informed
 - (2) somewhat informed
 - (3) informed
 - (4) very informed

 - b. Information requesting:
 - (1) not very often
 - (2) somewhat often
 - (3) often
 - (4) very often