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# *Conceptualizing Enrollment Behavior: the Effect of Student Financial Aid*

by  
*Michael E. Young*  
and  
*Pedro Reyes*

Traditional models of student behavior do not fully explain how students decide to enroll in any college or university. Young and Reyes sought to provide an alternative model to understand student enrollment behavior which is based on the concept of consumer choice.

## *Introduction*

Federal student financial aid came under intense political pressure in the early 1980's when the Reagan Administration questioned the program's effectiveness and sought to contain its costs. Research efforts on financial aid programs intensified during this period as proponents of financial aid searched for evidence demonstrating that aid was serving financially disadvantaged students and was increasing their postsecondary participation rates.

Although a number of studies (e.g., Stampen, 1985) concluded that aid made college more affordable to those who could otherwise not afford attendance, others were not as complimentary. One report (W.L. Hansen, 1982) prepared for the National Institute of Education caused considerable debate. The report concluded that the greater availability of student financial aid from 1972 to 1980 did not alter the college plans of high school seniors in favor of enrolling in postsecondary institutions. Without any evidence of positive effect, financial aid could not be said to amount to more than transfer payments for low income students. While Hansen's findings have since been challenged on both empirical and methodological grounds (J.S. Hansen, 1984), the effect of financial aid on postsecondary enrollment remains of intense interest to both policy makers and researchers.

Yet, there are few standard analytic approaches which allow researchers to assess the effects of aid on enrollment. In this paper, since financial aid is one factor in the college decision process, a more general problem is focused on: how students make the college choice. First, evidence is reviewed indicating that different ethnic groups, although participating in similar need-based financial aid programs, have different institutional participation rates. Limitations of conventional analytic approaches in explaining these differences is then discussed and a more appropriate consumer based framework is proposed.

## *Varying Participation Rates*

In Table 1, using Stampen's (1985) Student Financial Aid Recipient Database,

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need-based aid (mostly need-based grants) recipient national enrollments are analyzed by institutional type. The cells represent the proportion of need-based aid recipients enrolled in selected institutional categories by ethnic group (Young, 1986). The table indicates that over one half (53.2%) of Asian/Pacific Islander recipients and approximately 45.2% of black recipients were enrolled in two-year institutions. Both these rates were significantly different from whites (33.9%). White recipients had significantly higher participation rates (31.5%) in research universities than blacks (18.5%) and Asian/Pacific Islanders (15.6%). The question emerging from this data is: How does one account for these enrollment differences when differences in educational costs per student have been minimized by financial aid?

Table 1  
*Need-Based Aid Recipients By Institutional Type*  
*1983-84 School Year*

	Black	American/ Alaskan Indian	Asian/ Pacific Islander	Hispanic	White	Column Percent
Research	*18.5%	32.2%	*15.6%	26.7%	31.5%	27.7%
Comprehensive	34.8%	28.7%	30.1%	31.6%	32.9%	33.0%
Two Year	*45.2%	32.8%	*53.2%	39.9%	33.9%	37.7%
Liberal Arts/ Special	1.5%	1.4%	1.2%	1.9%	1.7%	1.6%
Column N =	1168	87	346	529	4077	6207
Row Percent	19.1%	1.4%	5.7%	8.6%	66.6%	100.0%

Note. "\*" indicates participation rates which are significantly different (.05 level) from whites.

#### *Conventional Analytic Approaches*

To answer this question one must first know how students make college choices. At the economic level, human capital theory (Becker, 1965) establishes the relationship between the costs of higher education and the propensity to enroll in college. This theory treats the acquisition of education as an investment (Schultz, 1982). College attendance requires that the individual or family expend private resources to meet acquisition costs. The investment return for the individual is most commonly thought to be increased earnings extended throughout one's lifetime.

Accordingly, the decision to enroll at a university or college occurs when the expected benefits of postsecondary education exceed the present costs of enrollment. The student chooses the alternative which presents the greatest difference between benefits and costs (Litten, 1984). Enrollment is expected to vary as changes occur in the costs of attendance and in the expectation that the benefits will be realized. College attendance would vary inversely with enrollment costs; financial aid increases attendance because aid reduces the net price of attendance.

This economic cost-benefit approach, however, does not entirely explain differences in student enrollment decisions. Evidence that ethnic groups differ in postsecondary education participation rates and attainment levels (Berryman, 1983; Gardner, et al., 1985; U.S. Census, 1985) suggest that differences could be at-

tributed to noneconomic social or cultural factors. Thus, various noneconomic variables are included in the analytic framework describing student behavior (Jackson, 1978; Terkla, 1984; Tinto, 1975). Two such approaches are considered here.

Jackson (1978) incorporated sociological and economic variables to develop a general model of student choice. Jackson identified four factors influencing a student's decision to enroll: 1) the desire to gain a given social status; 2) the desire to invest for the future; 3) the attractiveness of college as a way to spend one's time; and 4) socioeconomic conditions. By taking these factors into account, the following model of the postsecondary decision making process was constructed, where the decision is a function of student and school characteristics:

Equation 2.1

$$\text{Decision} = f(\text{Place, Background, School, Student, Friends, Occupation, Aspirations, Plans, Colleges, Jobs})$$

Another closely related attempt to describe student enrollment behavior incorporates student characteristic variables to develop the right side of the equation (Terkla, 1984). The Terkla model determines the relationship between student financial aid and persistence (Terkla, 1984, p. 9):

Equation 2.2

$$\text{Persistence} = f(\text{SES, Race, Sex, Aptitude, High School GPA, Occupational Aspiration, Degree Level Goal, Institutional Characteristics, College Performance, and Financial Aid})$$

But despite their many contributions, the economic and socioeconomic approaches are not without shortcomings. They do not, for example, explain how perceptions of college cost and benefits are developed, and how these perceptions are factored into the enrollment decision. Nor do they explain how a student processes information on postsecondary choices and integrates this information into decision making strategy (Bettman, 1979).

*Perceptions of Cost*

In order to introduce a framework of analysis which addresses these shortcomings, it is necessary to employ a consumer choice perspective to illuminate student enrollment behavior. Perceptions of college cost and benefits, how they are acquired and how they affect enrollment decisions are then better discussed.

From the consumer perspective, cost is represented by the sacrifice of personal resources required to earn a college degree (Murphy, 1984). These personal resources not only include monetary costs, but also include amounts of non-monetary effort and risk undertaken when a student decides to attend college. Many, if not all, effort and risk factors affect a consumer's reaction to monetary cost.

Murphy's taxonomy, presented in table 2, illustrates the complexity of the effort and risk dimensions in pricing higher education. Effort is defined as the amount of monetary and physical exertion required to purchase a service. In addition to an objective monetary or financial cost, Murphy identifies five other nonmonetary variables for which the consumer must pay: shopping, travel, waiting, performance, and monitoring time. These time costs suggest that while monetary cost is an essential component of the consumer's view of cost, it is not the only component.

Risk is defined as the consumer's impressions about cost and the probability of achieving desired benefits after purchase. Five types of risk are identified: financial, social, psychological, physical, and functional. The consumer not only takes financial risks that the college will not be worth the cost, but nonmonetary risks as well. Perception of risk may often outweigh monetary and time costs, and could significantly erode the effect of tuition and financial aid on enrollment decisions. For example, even though tuition is low, a student may choose not to attend because the possibility of failing in college is too great a social risk.

Table 2  
*Murphy's Taxonomy of Effort and Risk*

	Effort	Risk
Monetary	Financial Cost	Financial
Nonmonetary	Time-Shopping Travel Waiting Performance Monitoring	Social Psychological Physical Functional

Note. Adopted from Patrick E. Murphy (p.80) in Larry H. Litten, *Issues in Pricing Undergraduate Education*. San Francisco, CA.: Jossey-Bass Inc., 1984.

To establish an enrollment equation for analyzing the effects of student financial aid on enrollment, the relationship between costs and enrollment proposed by human capital theory is used, with cost components from Murphy's taxonomy incorporated into the right hand side of the equation.

Enrollment varies with monetary variables like tuition and financial aid, and with nonmonetary variables such as the social and psychological risks the student must take to invest in an education. To simplify these multiple factors, one possible symbolic representation of enrollment demand using marketing theory dimensions may be written as:

$$E = f(\text{ME}, \text{NonME}, \text{MR}, \text{NonMR})$$

where E = enrollment, is a function of: ME = Monetary Effort, NonME = Nonmonetary Effort, MR = Monetary Risk, and NonMR = Nonmonetary Risk. Financial aid is included in the monetary effort (ME) dimension.

#### *Enrollment as a Consumer Choice*

To explain how a student processes information on postsecondary choices and integrates this information into a decision strategy, the consumer choice perspective is again helpful. Information processing is a central component of choice behavior.

The information process suggested here is derived from Kotler's et al. (1985) work in educational marketing. The student, when making the postsecondary choice, goes through a hierarchy of increasingly more specific decision stages which either lead to

college attendance or nonattendance. The college choice process assumes the following: 1) monetary and nonmonetary costs are significant factors in the college decision; 2) while students move through similar stages in the choice process, individuals are uniquely influenced by cultural, social, and psychological factors (Kotler, et al. 1985); 3) perceptions of the costs and benefits of postsecondary education are shaped, at least in part, by the information available to the student; and 4) a variety of heuristics, as well as phenomena like memory and attention, and processes underlying the formation of expectancies and values are involved in making choices (Bettman, 1979). With these considerations in mind, the decision stages are as follows.

In the first stage of the process, "need arousal," the student develops an initial interest in college. This interest is stimulated by various internal and external cues. Internal cues may include physiological (e.g. hunger or thirst) or psychological (e.g. boredom or anxiety) feelings which a person experiences. External cues come from the person's environment such as the advice of a parent, or from sources such as advertising and newspaper articles. These cues trigger a set of basic needs, and college is seen as a way to satisfy these needs.

In the second stage, "information gathering" occurs and the student collects some amount of information about postsecondary alternatives, depending upon the student's own level of need for information. Probably, the most common information items collected in addition to college are related to postsecondary alternatives such as the military or full time employment.

In the third stage, "decision evaluation," the student narrows the choice from a set of alternatives. The prospective student moves through each problem by forming a set of preferences and chooses the most feasible and attractive alternative. Once college is decided upon, specific information required could include location of school, reputation, cost, and curriculum. The student might first decide which type of institution he or she would like to attend (e.g. university or community college) and then decides on institution A, B or C. College decisions become extremely complex, especially when students are unfamiliar with the benefits of postsecondary education, institutional goals and missions, and the criteria used to compare colleges to one another.

After the student evaluates various college alternatives, a ranked set of preferences is formed among those in the choice set. In this fourth stage of the buying process, "decision execution," the student moves towards enrolling in the most preferred college.

The final stage of the decision process is the "postdecision assessment." After enrolling, the student experiences some level of satisfaction with the college. A satisfied student will continue enrolling, while a dissatisfied student may drop out or transfer to another institution (figure 1 illustrates the entire process).

Figure 1  
*College Choice Narrowing Process*

Student Problem	Set of Alternatives
Stage 1 "Need Arousal"	
What do I want to do after high school?	<ol style="list-style-type: none"> <li>1. College</li> <li>2. Military Service</li> <li>3. Traveling</li> <li>4. Idleness</li> </ol>
Stage 2 "Information Gathering"	
Stage 3 "Decision Evaluation"	
What type of college do I want to go to?	<ol style="list-style-type: none"> <li>1. Four year public institution</li> <li>2. Two year public institution</li> <li>3. Private institution</li> </ol>
What specific institution do I want to attend?	<ol style="list-style-type: none"> <li>1. Institution A</li> <li>2. Institution B</li> <li>3. Institution C</li> </ol>
Stage 4 "Decision Execution"	
Stage 5 "Postdecision Assessment"	

*Note.* Adapted from Kotler, Phillip & Fox, Karen F.A. *Strategic Marketing For Educational Institutions*. New Jersey: Prentice-Hall, Inc., 1985.

Furthermore, there is considerable feedback throughout the entire process, because the environment is said to be dynamic, and the student actively searches the environment and molds it to suit individual goals. New information and needs constantly develop. Monetary and nonmonetary factors weigh differently at various stages of the process. It is possible that nonmonetary factors such as parental expectations and peer pressure weigh more heavily in the early stages; and monetary considerations such as tuition and financial aid become more influential in the later stages.

*Implications of the Choice Process Approach*

Human capital theory suggests that there is an inverse relationship between cost and demand for educational services. If all other things were equal, a system which equalizes financial costs for all students would result in equalized attendance rates for all groups of qualified students. However, the equation "E = f(ME, NonME, MR, NonMR)" indicates that the total costs of attendance include not only financial costs, but also substantial nonmonetary risk and effort. The sum of these factors makes up the entire right side of the equation. Student financial aid addresses the financial barriers of attendance, but nonmonetary factors are likely to play a significant role in the decision to enroll. To the extent that perceptions of nonmonetary risks offset monetary costs, students with differing perspectives should exhibit dif-

ferent participation rates in higher education. These differing perceptions may explain why some groups invest in higher education at higher levels than others.

The college decision model derived from Kotler's work describes the stages a student goes through in selecting a college to attend. One critical implication of this model is that the initial interest in college (the need arousal stage) is likely to occur before monetary costs become a serious factor in the decision process. Monetary cost first arises as a significant factor in the third stage of the decision process, decision evaluation. If student financial aid is viewed as part of monetary costs, it would not be expected to significantly affect early impressions about college, but is instead a greater factor as college decision alternatives narrow (e.g., in deciding which type of specific institution the student wishes to attend).

Hansen (1982) suggested that student financial aid may be inefficient in affecting access. Hansen apparently uses enrollment rates and college-going plans of high school seniors as measures of access. It may be argued, however, that enrollment rates and college-going plans are indicators of students' propensity to choose a college as a postsecondary activity, but they are not indicators of access. By these definitions, Hansen measured student propensity to choose college, and not access. He found then that student financial aid is inefficient in affecting propensity to choose college as a postsecondary alternative.

Hansen's findings may be explained by the college choice model. Conceptually, aid would not be expected to appreciably affect the propensity to choose college. College-going plans, made at the need recognition stage appear to be more heavily influenced by nonmonetary factors. Therefore, if the choice perspective is correct, the efficiency of the financial aid system should not be evaluated on the basis of its effectiveness in affecting the propensity to invest in college. The college choice model implies that, to locate effects of student financial aid, assessment efforts should focus at the decision evaluation stage. The model also reinforces the idea that financial aid is only one factor among many that is considered in the decision process.

### *Conclusions and Suggestions*

This paper focused on the general question: how students make the college choice. Student financial aid and its effect on postsecondary enrollment set the stage for the present inquiry. Evidence was presented indicating that different ethnic groups participating in similar need-based financial aid programs had different institutional participation rates. It was suggested that there were few standard analytic approaches which allowed researchers to assess the effects of aid on enrollment.

Conventional economic approaches did not explain why, after minimizing educational cost differences per student with financial aid, institutional participation rates continued to differ. Socioeconomic approaches suggested that noneconomic variables could account for some of these differences. However, the socioeconomic models were not without limitations. These models did not explain how perceptions of college cost and benefits are developed or how these perceptions were factored into the enrollment decision. Nor did they explain how a student processes information on postsecondary choices and integrates this information into a decision making strategy.

A consumer oriented model of the college choice narrowing process appears to address these limitations. The model may explain why Hansen (1982) found that the greater availability of financial aid resulted in no apparent change in college plans for high school seniors.

The consumer approach to student enrollment behavior may yield new insights about college access and minority group participation. Hopefully, this paper sets a



stage for further research and analysis of a consumer oriented approach to student enrollment behavior. Certainly, there is some indication of how this future research on financial aid and student enrollment behavior might go:

1) Within the student population, there appears to be significant segmentation with various subpopulations preferring different kinds of educational services. The student market may typically be segmented by geographic, demographic, psychological, and behavioral differences (Kotler, 1985; Lovelock and Weinberg, 1984; Lovelock, 1984). More information is needed on each of these market segments. For instance, demand elasticities for various educational services for the major segments should be estimated. Perhaps the demands for different educational services are stable or vary across segments of the population. It would be of interest then to isolate segments by geographic or demographic characteristics to understand their similarities or differences concerning college enrollment behavior. Because these segments also are expected to behave differently, it is also important to know how they will react in changing social and economic environments. For example, would participation rates of poor students decline more drastically than affluent students in an economic depression?

2) More information is needed on how these segments can be reached and served. In this regard, the following questions need attention: Can the various segments be reached through similar media and distribution channels? Do all student market segments have enough information about higher education to make rational postsecondary education decisions? Furthermore, is the decision to attend college rational?

3) More information could be gathered on the effect of financial aid on demand for educational services. The availability of aid has been important in some student markets and less important in others. Its impact appears selective. More should be known about the role and acceptability of financing for higher education; how important financing is to different segments of the student population, and for which higher education products is financing significant.

4) Furthermore, it is necessary to gather data concerning the different stages of college choice (see Figure 1). For instance, is socioeconomic status an important variable in explaining the assumptions of each stage? Does its importance vary across and within segments of the population? Are there any differences in its potential influence on college choice across stages? Answers to these questions should provide key information to college administrators for targeting specific groups, especially minorities.

5) Finally, the consumer model (proposed herein) needs to be tested to understand its heuristic power to explain enrollment behavior. It would be of interest, for instance, to use a small subsample of an ethnic group to test the model's ability to predict enrollment behavior. The model can be tested with a wider sample, including subsamples from different segments of the population.

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