2007 AIR RESEARCH DISSERTATION FELLOWSHIP PROPOSAL

Should transfer or not: The effects of Academic Match on Student Decision to Transfer

Data set of interest:
Beginning Postsecondary Students Longitudinal Study (BPS: 96/01)

Grant Amount Requested: $15,000

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Project Summary

The traditional educational pipeline that channels students to attend one institution and graduate with a baccalaureate degree captures the attendance pattern of less and less students. Nearly half baccalaureate degree recipients in 1999-2000 who start at four-year institutions attend more than one institution (Peter & Cataldi, 2005). However, the majority of research on student transfer patterns still focuses on upward transfer from community colleges to four-year institutions, leaving other transfer patterns somewhat mystery.

The researchers who used different datasets to examine multi-institutional attendance patterns found inconsistent outcomes on how student gender, ethnicity, and socioeconomic backgrounds associate with attendance patterns. Rab (2004) also concluded that engaging in multi-institutional attendance turned out to be an ineffective educational trajectory for economically disadvantaged students and perpetuated their timely degree completion. However, the prior study failed to answer the question of why student transfer. In addition, there was a sample selection bias in comparing the odds of baccalaureate degree completion of transfers and non-transfers because transfers were very likely to be those who did not perform very well and could not obtain degree in the original institution.

The proposed project is to examine how students decide to transfer, where they choose to transfer, and how transfer affect the degree completion for students. The study primarily relies on the "match" hypothesis. The "match" hypothesis is originally derived from college choice model. It hypothesizes that students search and apply to colleges matching their characteristics. The

proposed project highlights only the match of student academic capability and selectivity of the institution. The assumption of the study is that students tend to attend institutions that match student academic capability. Accordingly, entering an institution that does not, or no longer, match student academic capability may motivate students to transfer to another institution.

The author will use BPS: 96/01 to address the research questions. The analytical sample contains only the dependent students starting from four-year institutions, so that the sample consists of 13,664 students and 4,107 of them were transfer students. The author will use *multinomial logit regression model* to analyze the effects of academic match on student decision to stay, stopout, dropout, and transfer. To examine the predicted probability of transfer in response to the change of academic match of students and institution will allow the author to see whether academic match affects student transfer decision. Moreover, *simultaneous multinomial logit regression model* will be employed to analyze the selectivity of institution where students decide to transfer. Simultaneous multinomial logit regression model enables the author to consider student first college choice process and take unobservable personal factors into account. Thus, the author will estimate the effects of academic match on college choice. Finally, the author will use *logit regression model* to investigate the effects of transfer on student degree completion and use *Heckman's model* to address the issue of sample selection bias.

The result of this study will inform audience in both theoretical and policy levels. In theoretical level, this study will fill the gap in the literature on student transfer patterns and provide theoretical and methodological backgrounds for researchers to do future study. In policy level, this study will have national implications for educational practitioners to improve policies

and create equal opportunities for all students to choose and access.

Should transfer or not: The effects of Academic Match on Student Decision to Transfer

The mechanical image of a pipeline that channels students from high school to college and to baccalaureate degree attainment used to stand for the traditional view of college attendance. However, such a linear model – one student attending one institution and graduating in four years – no longer captures the attendance pattern of majority students. Today's burgeoning higher education marketplace and flexible statewide transfer policies provide students with much more choices than ever before. Students can begin with one institution, simultaneously take courses from another provider, transfer to a second or third institution, and enroll in distance learning courses at the same time. From the 1970s to 1990s, the number of institutions that a student attended before obtaining a baccalaureate degree shifted from one to two institutions to one to three (Adelman, 1999). A more recent research report from the National Center for Education Statistics (NCES) showed that nearly half (47.3 percent) of 1999-2000 first-time baccalaureate degree recipients who began in four-year institutions enrolled in more than one institution, 28.3 percent enrolled in two, 13 percent enrolled in three, and 6.1 percent enrolled in four or more institutions (Peter & Cataldi, 2005). Sylvia Hurtado, Director of the Higher Education Research Institute at UCLA, once suggested "replace the pipeline metaphor with a transit-system one: Students get on the bus at one point, get off again, take the train to the next stop, walk for a while –and maybe get to their destination, eventually" (Miller, 2004).

The students' destination can refer to the degree completion. Degree completion is the baseline shared by most parents and students, regardless of backgrounds (Adelman, 2003). When

the patterns of progress toward the goal achievement of postsecondary education have dramatically changed, however, the knowledge of how current student pursue degrees does not keep pace. Thousand pieces of research articles in the literature of higher education focus on students who leave their original institutions, simply neglecting those who do not leave higher education system but transfer to another institution. Thus, the traditional way to look at the starting institutions as the unit of analysis needs to be replaced by the way to look at the whole system as the unit of analysis.

Moreover, transferring behavior gives rise to new issues in higher education. Rab (2004) found that engaging in transferring behavior negatively influenced the probability of degree attainment and perpetuated the degree completion for students who began at four-year institutions. Transfer students have to adjust and integrate to the climates of more than one institution before they obtain degree, which takes longer time than students who complete degree in only one institution. Attending more than one institution may also diminish the aspiration to obtain baccalaureate degree, especially for part-time students, who are more likely to leave college without earning any degree at all (Choy, 2002). Furthermore, students with low socioeconomic backgrounds are more likely to transfer than economically advantaged students (Goldrick-Rab, 2006). If transferring represents an unsuccessful educational path, its attraction to poor students may reproduce the class inequalities and help to create the new forms of stratification within higher education.

Even though transferring has emerged as a significant issue in higher education, little research investigates the decision-making process of transfer students. The key objective of this

proposed study is to find out how students decide to transfer and where to transfer. The study may have implications at both the theoretical and policy levels. At the theoretical level, results of this study may inform the academic scholars of the future analysis on student choice model. The study will test if the match of student academic capability and institutional selectivity affects student decision to transfer. Because the matching of institutions and students remains in many ways as a process that happens in a black box (Jackson, 1982), this study tries to focus on the behavioral outcome of their choices. At the policy level, the results may have national implications for educational practitioners to develop equal opportunities of choice and access. This study may reveal the barrier for a certain group of students to access to a realm of choice. Even though the federal policy has expanded the financial aid to guarantee the opportunity for access and choice, such policy could only ensure students to go to *someplace*, not *anyplace* (Hearn, 1991). The result of this study may recognize the direct influences of academic capability on the matching process of institutions and students and have national implication for the development of choice equity.

<div align="center">Relevance to Literature</div>

Student choice models

The "match" hypothesis of institutional attributes and student characteristics has long been investigated in student choice models. This hypothesis carries a debatable assumption that the quality of a postsecondary institution can be assessed, at least indirectly, by levels of academic, financial, and human resources (Hearn, 1991). Students search information of targeted institutions, assess the quality of institutions, and apply to the ones that match student needs and

interests.

Students assess the institutional quality in dependence on the defensible indicators. Even though the available indicators are seldom ideal, the previous research has identified several key factors that can serve as indicators for institutional quality in academic, financial, and human resources. Litten and Brodigan (1982) asked 3,000 high school seniors to rank a list of 25 institutional characteristics according to the importance in deciding which colleges or universities to apply. The students gave the highest rank to the general academic reputation, financial aids, field of study, location, social atmosphere, faculty teaching reputation, academic standards, and careers to which college might lead. Despite of small variation, the findings of Litten and Brodigan (1982) are consistent with other studies. Lewis and Morrison (1975) found that six institutional characteristics played critical role in student college choice process: special academic program, cost, location, size, general reputation, and distance from home. Leslie, Johnson, and Carlson (1977) also claimed that the factors receiving the highest weight in the college choice process were academic reputation, educational programs, financial assistance, and distance from home. Moreover, because selectivity has strong positive correlation with the faculty training (Astin, 1982), the institutional prestige (Clark, 1983), and graduates' attainments (Hearn, 1991), it stands for the intelligence storage of an institution, thus can indicate the academic quality of institution. Therefore, the key variables that students use to assess the institutional quality can be the selectivity, financial aids, cost, size, and location.

Students with various characteristics choose institutions of different qualities. Students with better academic ability may have greater concern about the academic quality and offered

programs of the institution, and have lesser concern of financial assistance (Litten & Brodigan, 1982). In addition, more academically capable students have broader geographic limit in searching and applying process. The parental educational level and financial capability also influences student choices. The students with higher parental educational level and higher financial capability are more likely to choose institutions with superior academic standards and less likely to show interest in the costs and the financial assistance of institutions (Gilmour, Dolich, & Spiro, 1978; Litten & Brodigan, 1982). Moreover, the students with lower level of parental education and financial capability are more likely to be interested in the costs and financial assistances of institutions, and the careers to which the institutions may lead (Litten, 1982).

The mismatched students and institutions

However, such search and apply process does not guarantee that students enter the institutions which match them best. The assessment of institutional quality that students do before admission usually aggregates at the institutional level. After students enter institutions, individual students may experience unique kind of education, depending on the specific majors they choose, the activities they participate, their relationship with peers, the contact with faculty members, and so forth (Hearn, 1991). Unfortunately, student campus experience is unforeseeable before they are enrolled. If students enter the institutions that do not, or no longer, match their characteristics, students may choose to leave.

The majority of research examining student persistence relies on the institutional integration theory that the more academically and socially students integrate into the institutional

environment, the less likely they leave (Astin, 1984; Mallette & Cabrera, 1991; Nora, 1987; Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1977). The students who enter the mismatched institution may not be able to integrate into the institutional environment. The mismatched students may have difficulty in following instruction, choosing majors, interacting with peers and faculty members, participating extracurricular activities, and so forth. Light and Strayer (2000) found that entering highly selective institutions decreased the probability of degree completion for students with lower academic capability. Therefore, the mismatched students may be less likely to obtain degrees in the original institutions.

However, the research using the institutional integration theory to explain persistence examines only one institution. In vast majority of institutional studies, the students who depart the referent institution are simply marked as "dropouts" (Rab, 2004), no matter what educational pathway the students may choose in the following years. This common problem in the current research body leads researchers to be unable to distinguish the students departing from one institution with those departing from the educational system, neglect the action that the students response to the departure reason, and underestimate the graduation rates at the system level.

Transfer patterns

McCormick (2003) identified nearly a dozen different educational pathways ranging from simultaneous enrollment in two institutions to permanent transfer. However, each pathway does not capture equal amount of research attention. The upward transfer from a community college to a four-year institution is the hottest research topic among transfer patterns, whereas, other patterns are better acknowledged than closely examined.

Adelman (1999) did some exploratory study using National Education Longitudinal Study of 1988 (NELS 88) to investigate transition between different institutional types and the degree completion rates. He found that the students beginning at highly selective 4-year colleges and those starting at community colleges had the highest rates of multi-institutional attendance, though for very different reasons. Moreover, the number of institutions attended by students has no effect on degree completion. However, he also noted that he failed to examine the relationship of student characteristics to difference in those pathways.

The research carried out by Carroll (1989) did what Adelman (1999) failed to do. Carroll (1989) distinguished the behavior of stopout and transfer and showed how student SES, gender, and ethnicity affects student decision to choose different educational pathways. Students with high SES were more likely to be engaged in laterally transfer and maintain continuous enrollment than low SES students. Female students were less likely to transfer down and stopout than male students, and blacks were less likely than non-blacks to do either. However, Carroll relied entirely on qualitative research method; therefore, he failed to divorce the confounding effects from other variables like high school performance from the effects of SES, gender, and ethnicity. Moreover, Carroll broadly defined the term "transfer" in his research. In some case, the "transfer" in his study does not engage multi-institutional attendance (Adelman, 1999). As the result, his findings overestimated the effects of SES, gender, and ethnicity on student decision to choose attendance pattern.

Goldrick-Rab (2006) improved Carroll's results by including student high school preparation as explanatory variables and categorizing attendance patterns as traditional, interrupted, fluid

movement, and interrupted movement. She used the national longitudinal data (NELS:88) and multivariate regression method to predict student attendance patterns. The results demonstrated that economically disadvantaged students were more likely to choose interrupted educational pathway, however, such pathways was ineffective in degree completion. Additionally, she concluded that the emerging multi-institutional attendance may form a new layer of stratification in postsecondary educational system. However, Goldrick-Rab (2006) had a serious sample selection bias when she compared the probability of degree completion for transfers and non-transfers. Because transfers are likely to be those who had low probability to obtain degree in original institutions, to compare transfers with non-transfers may upward bias her result on effects of transfer on degree completion. To fix this problem, researchers may compare degree completion rates of transfers and students who were in similar situation but did not transfer.

As early as 1960, Burton Clark identified a unique downward transfer pattern - from four-year institution to community colleges - in his study of California junior colleges (Pusser & Turner, 2004). Today's downward transfer students constitute about 13 percent of students in community colleges, increasing from 9 percent in late 1960s (Pusser & Turner, 2004). The *New Direction in Community College* devoted a special issue discussing downward transfer students. Most research in this issue was descriptive and revealed that students be engaged in downward transfer for academic, financial, and personal reasons. Asian students were more likely to downward transfer than black, women rather than men, and over the age of 20.

The above literature provides the information on how student characteristics interweave with their high school backgrounds to affect attendance patterns. It also exposes the problems in the

current study body of student transfer behavior. The qualitative study on transfer behavior describes the student life in the institution where they transfer to but is limited in sample size and hard to follow the students who transfer to more than one institution. The quantitative study uses the national representative data to assess the educational outcomes of transfer student, but it fails to answer the question of why students engage in transferring behavior.

<div align="center">Research Questions</div>

This proposed project is to fill up the gap in the quantitative research of student decision to transfer. It tries to investigate if academic match of student academic capability and institutional selectivity plays a significant role in student decision to transfer and to assess if transfer helps students to complete baccalaureate degree within six years. The key research questions addressed in this study are listed as follows:

1. Does academic match affect student transfer decision?

    a. How does the academic match of student high school performance and the selectivity of starting institution affect student decision to stay, stopout, dropout, and transfer?

    b. How do student college performance and institutional context mediate the effects of academic match in student decision to stay, dropout, and transfer?

    c. What is the relationship of student socioeconomic backgrounds and gender to the student decision to stay, dropout, and transfer?

2. Where to transfer?

a. How does the academic match in the starting institution affect student decision on choosing institutions where they can transfer?

b. How do student socioeconomic backgrounds, high school performance, gender, and college performance mediate the effects of academic match in student decision on choosing institution where they can transfer?

3. How does transfer affect the probability to complete baccalaureate degree within six years?

a. Compared to the students who are of commensurate academic capability but do not transfer, does transfer increase or decrease the probability to complete the baccalaureate degree within six years?

Research Methods

Sample and data

The analytical sample of this study will confine to the dependent students starting at four-year institutions. Because the students who start at community colleges have to move to four-year institutions to receive a baccalaureate degree, the effect of transferring to four-year institutions is positive for these students. However, whether the students who start at four-year institutions will benefit from transferring is somewhat mystery. Thus, a great deal of heterogeneity in the composition and outcomes of student educational pathways merits close attention.

The author will use national longitudinal data Beginning Postsecondary Students Longitudinal Study (BPS: 96/01) to address the proposed research questions. BPS: 96/01

maintains detailed record on student experience of retention, transfer, and program completion. It also provides rich information on student campus life and financial aids. Moreover, compared with data source used in prior studies on student transfer patterns, BPS: 96/01 collected information on students who enrolled most recently. Therefore, it will demonstrate the most updated student transfer patterns.

The analytical population of this study consists of dependent students starting at four-year institutions (both public and private non-for-profit institutions) at AY 95-96. There were 13,664 students enrolled in four-year institutions at AY 95-96, and 4,107 of them have experienced transfer before AY 2000-01.

Methods and key variables

The multivariate regression analysis is the primary method to address the research questions listed above. Three different models will be used to serve distinctive purposes of these questions. First, the author will use *multinomial logit regression model* to verify if the match of student academic capability with selectivity of institution affects student decision to stay, stopout, dropout, and transfer. The dependent variable of this model will be student choices of stay, stopout, dropout, and transfer (1=stay to 4=transfer). The independent variables will be age, gender, parental educational level, family annual income, high school class rank, high school GPA, SAT/ACT, aspiration, selectivity of starting institution, attend part-time (dummy variable), declared major, college GPA, cost, financial aids. Multinomial logit regression model will predict the changing probability for students to choose transfer over other choices in response to the change in academic match of students and institutions. If students with lower academic

capability attending less selectivity institutions will decrease the probability of choosing transfer and vice versa, the hypothesis of academic match is proved to be a significant reason in student decision to transfer.

Then, the author will again use *multinomial logit regression model* but with a small variation to explain how academic match affects student decision on where to transfer. Students starting at four-year institutions have choices to transfer to other four-year institutions or to community colleges. Here the author focuses only on the students who transfer to other four-year institutions. Transfer students experience college search and apply process for more than one time. The following function stands for the first college choice process for students.

(1) $Selectivity_1 = U_1(A, C, F) + \varepsilon_1$

The dependent variable is the selectivity of the starting institution. The independent variable *A* represents the academic capability of students which is indicated by high school GPA, high school class rank, and SAT/ACT. *C* represents student characteristics including age, gender, and aspiration. *F* represents student family characteristics including parental educational level and family annual income. In addition, residual ε measures the unobservable personal factor that affects the choice of institution.

Students who decide to transfer to other four-year institutions will search for institutions again. Their experience in the starting institution can be a critical factor in the second-round college choice process. Therefore, function (2) includes college experience in original institutions as an independent variable.

(2) $Selectivity_2 = U_2(A, C, F, I) + \varepsilon_2$

The dependent variable is the selectivity of the second institution. The independent variables A, C, and F represent the same factors as in (1). The new variable *I* denotes student experience in the original institution including cost, financial aid, declared major, and GPA. The residual ε again measures the unobservable personal factor effect.

To estimate the college choice models (1) and (2), the author run the two models simultaneously and allow the unobservable residuals ε_1 and ε_2 to be correlated with each other. The unobservable factor that influences the college choice model in the first round is very likely to affect college choice in the second round. To understand why this correlation is important, suppose a student with moderate academic capability but like facing challenge. The student may attend a very selective institution at first but find the course work is too challenging for him or her. When the student searches for transfer institution, his or her personal preference may again lead to a selective institution where the academic requirement is still beyond his or her capability. By estimating the correlation among unobservable personal factors, the author can infer that the low academic capability is not what causes the students to choose selective institution, but the unobservable factors induces the low academic capability students to attend selective institution.

Finally, the author will use *Heckman's model* and *logit regression model* to estimate the effect of transfer on the probability of baccalaureate degree completion. Rab (2004) compared the rates of degree completion for transfers and non-transfers and concluded that multi-institutional attendance decreased the probability of degree completion. However, to compare transfers with non-transfers can be a sample selection bias. If transfer students had stayed at the original institution, they may have demonstrated even lower probability to complete

the baccalaureate degree. To address this problem, the author will use Heckman's model to fix the sample selection bias, and then use logit regression model to compare the probability of degree completion for transfer students and students who are of commensurable capability but do not transfer.

Limitation of Data

This study is limited in a few notable ways for the chosen dataset. First, institution-level variables are not included in any model. Therefore, the author does not measure the effects of institutional context on student transfer decision. However, Adelman (1999) argued that institutional effects were compromised when students attended two or more institutions. The experience that students have in institution X might not have significant effects on their experience in institution Y and Z. Therefore, collecting institution-level variables and employing multi-level analysis may not demonstrate very different results than otherwise. Second, BPS data largely relies on the information institutional self-reported to the National Center for Education Statistics (NCES). Therefore, it may potentially inconsistent across institutions.

Dissemination Plan

The author may produce several working papers based on the results of this dissertation. The papers will be submitted to the major conferences including AIR and ASHE. After incorporating comments and suggestions from external resource, the author will submit papers to the leading journals in higher education.

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Biographical Sketches

Dai Li, is a third-year doctor candidate in Higher Education program of Pennsylvania State University. She achieved her candidacy in the summer of 2005. Her interests include finance, public policy, and technology transfer issues in higher education. She is concurrently enrolled in Applied Economics department and working on her master's degree in applied economics. Before attending Pennsylvania State University, she was a master student in Center for the Study of Higher Education in University of Arizona.

Budget

Title: Should transfer or not: The effects of Academic Match on Student Decision to Transfer

<u>Personnel:</u>

Principle Investigator/Doctoral Student: 1-FTE academic year @ 1,300/mo $13,000

<u>Travel:</u>

AIR Forum and other conferences: $2,000

Total amount applied: **$15,000**