Women, Transfer, and Baccalaureate Completion

Melissa L. Freeman
Research Associate & Doctoral Student
Center for Higher Education
Ohio University
136 McCracken Hall
Athens, Ohio 45701
(740) 597-1862
freeman@ohio.edu

Valerie Martin Conley
Assistant Professor, Higher Education &
Director, Center for Higher Education
201 McCracken Hall
Athens, Ohio 45701
(740) 593-9426
conleyv@ohio.edu

Paper presented at the Association for Institutional Research Annual Forum
Chicago, Illinois
May 2006
Abstract
This study builds on existing knowledge of community college students, particularly regarding transfer issues between community colleges and four-year institutions and successful completion of the baccalaureate degree. We used the National Center for Education Statistics (NCES) 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) to examine risk factors and gender on transfer and baccalaureate completion, including the interaction effects with gender on transfer.
Introduction

Many American families believe that education is a way to a better life. Higher education, in particular, is often viewed as a principal avenue to increased socioeconomic status (SES). Perna (2005) notes college enrollment trends generally mirror trends in the college earnings premium (i.e., the gap in earnings between college and high school graduates). The median income increases with educational attainment. For example, in 2003 a high school graduate could expect to earn a median income of $30,800; a community college graduate could expect to earn a median income of $37,600; and a graduate with a baccalaureate degree could expect to earn a median income of $49,900. This represents a 62% difference in median income between a high school graduate and a bachelor’s degree recipient (College Board, 2004).

Despite the earnings differential among these groups, the Advisory Committee on Student Financial Assistance (2002) estimated that over the next decade approximately 4.4 million students who are college qualified will not enroll in a four-year institution, and 2 million will not attend at all. A reason often offered is the lack of affordability of a higher education.

Since the early 1980s, college prices have risen at alarming rates. In constant dollars, the overall increase for tuition and fees at a public four-year institution from 1980-81 to 2005-06 was 202%. Similarly, for a public two-year institution the overall increase for tuition and fees during this same time was 148%. Between 2004-05 and 2005-06, the average tuition and fees for students attending a public four-year institution increased by 7.1%, from $5,126 to $5,491. Likewise, average tuition and fees for students attending a public two-year institution increased by 5.4% from $2,079 to $2,191 (College Board, 2005; Mumper & Freeman, 2005).

Given the spiraling costs of higher education, especially in a public four-year institution, vertical transitions have become a focus of educators, legislators, parents, and students. It is
estimated that by 2013, enrollment at public two-year colleges is projected to total around 6.8 million students. Today, 44 percent of students in public colleges attend two-year institutions (Long, 2005). Studies indicate that large numbers of these students (25-42%) anticipate attaining a bachelor’s degree (Coley, 2000; Berkner, He, & Cataldi, 2002; Hoachlander, Sikora, & Horn, 2003). The increasing cost of higher education and dependence on a highly educated workforce points to the need for further research that focuses on bachelor’s degree attainment of students who first attend community colleges\(^1\).

The literature is rich with research regarding vertical transitions for students starting in a sub-baccalaureate institution. Scholars have been studying this phenomenon for more than 40 years. But, as four-year college costs continue to rise and state and federal policy makers look for ways to maximize efficiencies, community colleges will increasingly be a choice for many students to start their academic careers. Thus, studying vertical transitions needs to continue to be a focus of researchers.

The purpose of this study is to add to the discussion by exploring gender differences and the risk factors that may influence transfer and baccalaureate completion and by examining the interaction effects between gender and risk factors with transfer. Risk factors include a) delayed enrollment into postsecondary education, b) no high school diploma, c) attending part-time, d) being financially independent, e) having a dependent other than a spouse, f) being a single parent, and/or g) working full-time (Horn and Premo, 1995).

Background and Role of the Community College

The primary purpose of the first junior colleges was to provide lower division level courses toward the baccalaureate degree. The 1940s saw a proliferation of sub-baccalaureate

\(^1\) In this paper, community college, two-year institution, and sub-baccalaureate institution are used interchangeably throughout.
institutions called community college. In addition to providing the avenue into a baccalaureate-degree granting institution, they expanded their educational roles to include vocational, adult, and remedial education (Brubacher & Rudy, 2001; Hungar & Lieberman, 2001). Today, community colleges serve several important functions in higher education ranging from a place to experiment with postsecondary education to receiving an associate’s degree (Bradburn, Hurst, & Peng, 2001). These expanded roles have led to a new mission that includes open access, affordability, inclusiveness, vocational education, and adult/remedial education among others (American Association of Community Colleges, 2004).

Community colleges also provide a route for many students to gain entry into a baccalaureate institution, who might otherwise find such a journey difficult. They have open access policies and lower fees, which are necessary to attract individuals who cannot afford four-year institutions, have poor academic performance in high school, need remedial work, need specific work skills, or are just unsure about what they wish to do with their lives (Hoachlander, Sikora, & Horn, 2003). This enables students, who ordinarily would not be admitted to a four-year institution, to prepare for entry at a later date. Thus, community colleges may serve as the foundation for baccalaureate completion. Sometimes referred to as the 2+2 (or 2/2) model, we refer to it as vertical transitions. Beginning one’s postsecondary education at a community college, with plans for transfer to a four-year institution, is often a more affordable way for low-income and less prepared students to attain a baccalaureate degree. This, coupled with spiraling costs, has led to an increased interest among state and federal level policy makers in vertical transitions.
The Transfer Function

It is misleading to suggest that the traditional 2+2 model is the principal avenue by which today’s students begin and end their postsecondary careers. In fact, researchers have documented the notion that “traditional” enrollment is a misnomer. Many students enroll simultaneously and in multiple institutions or they begin in a four-year institution and then “reverse transfer” to the community college. Researchers refer to these enrollment patterns as “swirling” (Adelman, 2005a, 2005b, & 1999; Kozeracki, 2001). According to Adelman (2005b), a substantial number (42 percent) of temporary transfers—those who begin in a four-year institution—“drop in” to the community college for any number of reasons such as taking an occasional course for transfer or personal or professional development. An additional 25 percent are reverse transfer students who leave the four-year institution to attend a community college. But the most interesting group are those who are the alternating 4/2/4. Twenty-eight percent of students actually alternate between the two types of institutions and 32 percent of those alternate more than once. There are a number of reasons students enroll in different types of postsecondary institutions. Students who begin in a community college report reasons varying from attaining basic skills such as English language proficiency, personal enrichment opportunities, job skills, a degree/certificate, to transferring to a four-year institution (Hoachlander, et al, 2003).

Of those who first enrolled in the community college, many expressed an interest in transfer and baccalaureate attainment. (Berkner et al, 2002; & Hoachlander, et al 2003) Clearly, transfer from a two-year to a four-year institution has historically been a principal avenue by which many students are able to attain a baccalaureate degree. This is especially important for
students who choose not to begin their academic careers at four-year institutions for reasons of higher cost.

Although Lee and Frank (1990) did not delve further to determine who among those were successful in attaining a baccalaureate degree, other researchers have. For example, a recent study conducted for the National Center for Education Statistics (NCES) about the goals, academic preparation, and outcomes of community college students found “about 29% of all first-time community college students transferred to a 4-year college or university during the 6-year survey period…” (Hoachlander, Sikora, & Horn, 2003, p.xi).

Transfer from a two-year to a four-year institution has been a subject of interest among higher education officials for more than 4 decades. One of the earliest studies about transfer was conducted by Knoell and Medsker in 1965. They looked at more than 7,000 junior college students who transferred to a four-year institution in 1960. Interestingly, some of their findings were similar to current research. For example, economics played a role in the decision to begin in a two-year institution; those most likely to succeed had performed well in high school at the two-year institution; and a delay in enrollment diminished their chance at success. After three full calendar years following transfer, 62 percent had been granted their baccalaureate degree; 9 percent were still enrolled; and 4 percent had transferred to other institutions (Knoell & Medsker, 1965). Clearly, large numbers of transfer students who started out in a community college were successful at baccalaureate completion in the 1960s, albeit not always within a “traditional” span of time. This makes sense given that historical junior colleges, which were the focus of the Knoell and Medsker study, were designed as a pipeline into the four-year institution. Today’s community colleges, however, have much broader missions and provide a larger range of services to a more diverse constituency.
Socio-Demographic Characteristics

Socio-demographic characteristics such as gender and risk factors are important to consider when discussing transfer and baccalaureate completion. Many studies have explored the differences between men and women with regard to higher education achievement. In fact, recent literature points to evidence that women are making greater strides in higher education today than ever before (Peter, Horn & Carroll, 2005; King, 2000). Yet few studies focus specifically on women and characteristics related to their success. In fact, much of the literature indicates that men are more successful than women. Lee and Frank (1990) found that significantly higher percentages of women do not transfer than men, 54% and 46%, respectively. Similarly, Velez and Javalgi (1987) reported that “being male increases a student’s odds of transferring by about 18 percent” (p. 85). Finally, Freeman, Conley, & Brooks (2005; 2006) found that, even though larger percentages of women transfer and complete, after other variables were entered into the equation, women were actually less likely to be successful at transfer and baccalaureate completion than men. These results, coupled with findings from Peter, Horn, and Carroll (2005) which suggest that the majority (57%) of undergraduates with one or more risk factors are women, point to the need to better understand baccalaureate success of women who first begin in a community college. Other research has shown that risk factors have strong and significant effects on transfer and baccalaureate degree attainment. Risk factors include a) delayed enrollment into postsecondary education, b) no high school diploma, c) attending part-time, d) being financially independent, e) having a dependent other than a spouse, f) being a single parent, and/or g) working full-time. As the number of risk factors increase, the less likely it is that students will transfer from a two-year to a four-year institution, much less anticipate attaining a baccalaureate degree. For those with one or more risk factors, 32% reported they
anticipated receiving a baccalaureate degree, while 55% of those with no risk factors reported the same (Hoachlander, Sikora, & Horn, 2003). Some studies go so far as to imply that without providing additional services and support beyond access, attending a community college may perpetuate rather than ameliorate social stratification in higher education (Clark, 1960; Velez & Javalgi, 1987; Lee & Frank, 1990; Tinto, 2004).

Research Hypothesis

Given this extensive literature, our assumptions are that certain characteristics such as gender and risk factors will distinguish those who (a) transfer and (b) complete a baccalaureate. Additionally, certain interaction effects among various risk factors and gender will impact whether or not women will transfer from a sub-baccalaureate institution to a four-year institution. Research shows that socio-demographic characteristics such as gender and risk factors distinguish those who transferred from a two-year to a four-year institution and finished a baccalaureate. Here, we add to the literature by exploring the impact that risk factors have on transfer and baccalaureate completion and the interaction effects of risk factors and gender relative to successful transfer. It is our hypothesis that the interaction effects of these variables—risk factors and gender—will distinguish women who transfer from a sub-baccalaureate institution to a four-year institution from those who do not. Specifically, the purpose of this study is to add to the discussion by exploring gender differences and the risk factors that may influence transfer and baccalaureate completion and to examine the interaction effects between gender and these risk factors.
Limitations

There was a significant limitation to this study. It was the low number of observations associated with the population of interest—students who begin in a sub-baccalaureate institution. The NCES website states the following about the BPS dataset.

BPS studies follow students who first begin their postsecondary education. Initially, students in the NPSAS surveys are identified as being first time beginners of undergraduate studies. These students are asked questions about their experiences during, and transitions through postsecondary education and into the labor force, as well as family formation. Transfers, persisters, stopouts/dropouts, and vocational completers are among those included in the studies [emphasis added]… (NCES, 2006).

However, in this analysis we discovered that of the total population surveyed, a little more than one-quarter of these students began in a sub-baccalaureate institution. Of these, fewer than 500 actually transferred to the four-year institution. And, fewer than 200 of those students finished the baccalaureate degree. Clearly, students who begin in a sub-baccalaureate institution, especially those who transfer, are under-surveyed and underrepresented. Analyzing and making generalizations about this population, with such a significant limitation, is difficult at best.

Method

Participants

The data for this study will be drawn from the National Center for Education Statistics 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS: 96/01). A combination of descriptive statistics and multivariate techniques will be used to explore the following research questions.

1. What are the characteristics of first-time community college students?
2. What are the characteristics of first-time community college students who transfer to a four-year college or university?

3. What are the characteristics of first-time community college students attained a bachelor’s degree within 6 years?

4. Do characteristics such as gender and risk factors distinguish students who transfer from those who do not? Is there an interaction effect between gender and the selected risk factors?

The primary concerns of this study are (a) risk factors, (b) gender, and (c) the interaction effects of these variables on students who transfer from a sub-baccalaureate institution to a four-year institution.

Sample

The Beginning Postsecondary Students (BPS) Longitudinal Study consists of a sample of all undergraduates, regardless of when they graduated from high school, who enrolled in postsecondary education for the first time in 1995-96 and were last interviewed in 2001, approximately six years later. This survey provides the latest data on degree attainment and persistence six years after the students first enrolled as well as their four-year college transfer rates and the outcomes of these transfers. The sample used in this paper was restricted to BPS students whose first enrollment was in a sub-baccalaureate institution.

Variables

The unit of analysis was students who began in a sub-baccalaureate institution. The dependent variable was a dichotomous indicator of whether or not the student transferred from a sub-baccalaureate to a four-year institution. The independent variables included the seven risk factors and gender. Operationalization of the independent variables follows.
The seven risk factors as identified by Horn and Premo (1995) include (a) delaying enrollment into higher education, (b) being a single parent, (c) being married, (d) having a dependent other than a spouse, (e) having no high school diploma, (f) working full-time, and (g) being financially independent. Here, we explored risk factors relative to the likelihood of transferring and completing a baccalaureate degree. All risk factors were dichotomized into yes or no. Further operationalization of the two risk factors (e), not having a high school diploma and (f), working full-time was as follows. Not having a high school diploma is interpreted in the strictest of manners. Here, we dichotomized between high school diploma or not. Even if a student had attained a general education degree (GED), they were not included in the high school diploma category. Working full-time was dichotomized as well. Here, those students working 34 or more hours per week are considered to be full-time employed, while those working fewer than 34 hours per week are considered to not be working full-time. Finally, gender was a dichotomous variable of male or female.

Statistical Methods

A combination of descriptive statistics and multivariate techniques were used to answer the research questions. Statistics relevant to students who began their postsecondary education at a sub-baccalaureate institution and transferred to a four-year institution were produced using the BPS 96/01 Data Analysis System (DAS), and SPSS. The DAS produces weighted estimates, standard errors that take into account the complexity of the sampling procedures, and weighted sample sizes for the estimates. To answer questions 1, 2, and 3, estimates and the corresponding standard errors were computed and statistical significance was determined by computing Student’s t-statistics, according to NCES standards. Results are presented in tables 1 and 2.
To answer the fourth research question, we conducted a logistic regression analysis in SPSS. Logistic regression is an appropriate multivariate technique when the dependent variable is dichotomous (DesJardins, 2001). Mathematically:

$$\log \frac{P_i}{1 - P_i} = a + BX_i$$

In this case, there are two outcomes or events of interest for the model—transferred versus did not transfer. $P_i$ is the probability that a student who began their postsecondary education in a two-year institution transferred. While $1 - P_i$ is the probability that the student did not transfer.

The factors related to degree attainment of sub-baccalaureate students form a set of independent variables, $X_i$, and $a$ and $B$ are the intercept and the estimated coefficients of each of the independent variables included in the model, respectively. The null hypothesis ($H_0$) is that none of these characteristics distinguish those who transferred from those who do not $H_0: P = 0$. The alternative hypothesis ($H_A$) is that characteristics, such as gender and risk factors, will distinguish those students who transfer from those students who do not $H_A: P \neq 0$.

Additionally, we conducted an interaction effect analyses between gender and the selected risk factors. As Jaccard (2001) points out, “An interaction effect is said to exist when the effect of a independent variable on a dependent variable differs depending on the value of a third variable, commonly called a ‘moderator variable.’” (p. 12). For purposes of this study, gender is the moderator variable.

Results

**Question One: What are the characteristics of first-time community college students?**

Descriptive statistics were computed to determine the total percentages of those who first attended a sub-baccalaureate institution. Those variables included all seven risk factors. Results are presented in table 1.
Of all students who began in a sub-baccalaureate institution, a higher percentage were women (55%) than men (45%). The findings relative to risk factors are quite interesting for this population of people, and especially for women. Among this population, women were significantly more likely to be a single parent (78%), have a dependent other than a spouse (72%), be financially independent (66%), to not have a high school diploma (61%), have delayed enrollment into postsecondary education (58%), and to be enrolled part-time (54%), relative to their male counterparts. Clearly, many women who begin their postsecondary career in a sub-baccalaureate institution face obstacles that men do not.

Of those who begin in a sub-baccalaureate institution, far more of them were women. Additionally, a greater number of women have risk factors relative to men. Therefore, if we want women to be educationally successful and economically competitive, it is important that we look at those students who transfer to a four-year institution, relative to these same risk factors by gender.
Table 1

*Percent Male and Female Community College Students with Risk Factors*

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Male</th>
<th>Female</th>
<th>t for Diff in Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>45.29 (1.57)</td>
<td>54.71 (1.57)</td>
<td>4.24*</td>
</tr>
<tr>
<td>Risk Factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Enrollment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>41.89 (2.70)</td>
<td>58.11 (2.70)</td>
<td>4.24*</td>
</tr>
<tr>
<td>No</td>
<td>49.45 (2.09)</td>
<td>50.55 (2.09)</td>
<td>0.37</td>
</tr>
<tr>
<td>High School Diploma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes**</td>
<td>46.34 (1.70)</td>
<td>53.66 (1.70)</td>
<td>3.04*</td>
</tr>
<tr>
<td>No</td>
<td>39.33 (3.46)</td>
<td>60.67 (3.46)</td>
<td>4.36*</td>
</tr>
<tr>
<td>Part-Time Enrollment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46.22 (2.61)</td>
<td>53.78 (2.61)</td>
<td>2.05*</td>
</tr>
<tr>
<td>No</td>
<td>44.68 (1.93)</td>
<td>55.32 (1.93)</td>
<td>3.90*</td>
</tr>
<tr>
<td>Financially Independent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34.28 (3.01)</td>
<td>65.72 (3.01)</td>
<td>7.39*</td>
</tr>
<tr>
<td>No</td>
<td>53.87 (1.86)</td>
<td>46.13 (1.86)</td>
<td>2.94*</td>
</tr>
<tr>
<td>Dependent other than Spouse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>28.15 (3.01)</td>
<td>71.85 (3.01)</td>
<td>10.27*</td>
</tr>
<tr>
<td>No</td>
<td>51.53 (1.75)</td>
<td>48.47 (1.75)</td>
<td>1.24</td>
</tr>
<tr>
<td>Single Parent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>22.47 (2.51)</td>
<td>77.53 (2.51)</td>
<td>15.51*</td>
</tr>
<tr>
<td>No</td>
<td>49.56 (1.71)</td>
<td>50.44 (1.71)</td>
<td>0.36</td>
</tr>
<tr>
<td>Work Full-Time (34+ hrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>54.81 (2.97)</td>
<td>45.19 (2.97)</td>
<td>2.29*</td>
</tr>
<tr>
<td>No</td>
<td>40.55 (1.83)</td>
<td>59.45 (1.83)</td>
<td>7.30*</td>
</tr>
</tbody>
</table>

*p < .05

**Does not include GED.

Note. Standard errors are in parentheses. May not add to 100.0 percent due to rounding.

Question Two: What are the characteristics of first-time community college students who transferred to a four-year college or university?

Descriptive statistics were computed to determine the total percentages of those who did and did not transfer from a sub-baccalaureate institution to a four-year institution. Those variables include all seven risk factors. Results are presented in table 2. Interestingly, although far more women begin in a sub-baccalaureate institution than do men (table 1), men actually transfer at significantly higher rates to the four-year institution than do women, 57% versus 43%, respectively (table 2). Thus, a breakdown in the pipeline from sub-baccalaureate to four-year institution clearly exists for women.

When looking at the differences among men and women according to risk factors, it appears certain risk factors hinder both men and women. For example, students beginning their career in a sub-baccalaureate institution who do not have a high school diploma or are single parents seem to not transfer to the four-year institution. In looking at the descriptive statistics, the observed number of cases was too low to report for certain aspects of these variables. Further, given that women were significantly more likely than men to have these risk factors, it stands to reason that women who never attained a high school diploma or are single parents are unlikely to transfer to a four-year institution.

Other significant findings indicate women’s disadvantage as well. For example, of those who did receive a high school diploma, significantly fewer of them are women (44%) than men (56%). Likewise, of those who indicated that they did not have a dependent other than a spouse, fewer were women (42%) compared to men (58%). Women were also less likely to be financially dependent (42%) than men (58%). Similarly, while not statistically significant, there
was a notable difference among those who do have a dependent other than a spouse between women (56%) and men (44%). It is evident that women are far less likely to transfer to the four-year institution. And for those women who have certain risk factors in particular, they are even less likely to ever leave the sub-baccalaureate institution.

**Question Three:** What are the characteristics of first-time community college students who attained a bachelor’s degree within 6 years?

Descriptive statistics were computed to determine the total percentages of those women who attained a baccalaureate degree within six years after transferring from a sub-baccalaureate institution. Those variables include all seven risk factors. Results are presented in table 2.

For women who transfer from the sub-baccalaureate institution to the four-year institution, more of them finish the baccalaureate degree than do men, although not significantly so, 55% versus 45%, respectively. However, for many women with risk factors the breakdown in the educational pipeline occurs in the sub-baccalaureate institution, effectively ending their academic careers. These women do not even transfer to the four-year institution, much less finish the baccalaureate degree because the obstacles they face are too difficult. In fact, several of the independent variables, had such a low number of cases that descriptive statistics cannot be reported. These include (a) delayed enrollment, (b) no high school diploma, (c) financially independent, (d) have a dependent other than a spouse, (e) being a single parent, and (f) working full-time. This is true for both men and women. The one significant finding in these proportions supports the notion that working full-time will hinder one’s progress to a baccalaureate degree. Here, of those who reported not working full-time, a significantly larger number of women (58%) finish the baccalaureate degree within six years as compared to men (42%).