

Determinants of Transfer among Community College Students

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The purpose of this study was to identify determinants of transfer. Accounting for variables in several domains (background, academic, social, environmental), this research was particularly interested in the effect of environment on transfer. Data employed in this study was derived from the Beginning Postsecondary Students Longitudinal Study (BPS: 2003/2009). The population of interest was delimited to community college students who indicated their intent to transfer during their first year of college (2003). Using logistic regression, four additive models of transfer were computed. Taking all models into account, several variables were significantly predictive of transfer. These included students' age, high school performance, generation status, participation in clubs, participation in school sports, hours worked per week, and familial responsibilities (having dependent children). While the variables examined in this study are important considerations in transfer, the low variance accounted for in all models suggests a need for further research. This study underscores the importance of adding environmental variables (in tandem with other factors) to the current discourse on transfer.

Background

One of the core mission components of community colleges is transfer (Cohen & Brawer, 2003; Townsend, 2001). Transfer refers to the process whereby community college students transition into four-year colleges and universities (Townsend & Wilson, 2006). Sometimes this transition is referred to as *forward transfer*, this term is used to distinguish between students who transfer to other community colleges (*lateral transfer*) (Wassmer, Moore & Shulock, 2004). In general, transferring occurs after a student has completed their general education (GE) (Nevarez & Wood, 2010); however, this is not always the case. Transfer (especially into private colleges) can occur prior to GE completion or due to special circumstances (e.g., low enrollment at four-year colleges, unique articulation agreements). Further, in some cases, students may have completed their GE, but their lack of information on the transfer process may prevent them from transferring.

This aspect of the community college's mission hails to the institutions philosophical origins as a derivation of the German model of education. In the German model, students continue their secondary educational pursuits for an additional two years longer than students in the United States (equivalent to grade 14). During this time, students complete their general education studies and then continue either into the workforce after receiving pre-baccalaureate certificate/degree or to postsecondary work in specialized areas (Ratcliff, 1994; Tillery & Deegan,

1985; Witt, Wattenbarger, Gollattscheck & Suppiger, 1994). The model was held in high regard by early community college leaders (Nevarez & Wood, 2010). While transfer remains a core focus of the community college, there are many other core foci (e.g., remediation, vocational education, continuing education, terminal degrees) which have expanded over time. These foci also require institutional attention and funding allocations, thereby detracting from the original intent of the community college model (which centered on transfer and terminal degrees).

In recent years, policymakers, educators, and the public have been critical about the community college's success in facilitating students' transition to four-year colleges (Anderson, Alfonso & Sun, 2006; Grubb, 1991; Kisker, 2007; McCormick & Carroll, 1997; Yang, 2008). The current national fiscal landscape coupled with elevated expectations for assessment and accountability has further fueled discourse around transfer. In general, the concern about transfer centers on the low number of students who intend to transfer who actually do so. For example, 55.8% of students who entered the community college during the 2003-2004 academic year stated that they intended to transfer. Of these students, 26.0% indicated they wanted to earn a degree and transfer while 29.8% wanted to transfer without earning a degree.

This high level of interest in transitioning to a four-year college is evident across multiple racial/ethnic groups as exhibited by the following transfer intention rates: White, 54.5%; Black, 53.2%; Hispanic, 59.9%; Asian

American, 66.9%; and American Indian, 39.9% (U.S. Department of Education, 2009a). Unfortunately, intentions do not always equate to success. Within a three year time frame, only 35.1% of students who noted that they intended to transfer actually did. A transfer gap between intention rates and actual outcomes is evident across racial groups as well, as illustrated by the following rates: White, 37.6%; Black 31.0%; Hispanic, 26.9%; Asian 49.3% (U.S. Department of Education, 2009b). An insufficient sample size prevented reporting data for American Indian students.

Some research has examined determinants of transfer intent. For example, Nora and Rendón (1990) examined factors predictive of students' predisposition to transfer. Their analysis examined the effect of academic (e.g., using the library to study, asking faculty for advice, attending campus lectures) and social integration (e.g., involvement in extracurricular activities, looking for information on special activities, reading the college newspaper) on transfer. They found that students with greater levels of academic and social integration were significantly more likely to have a predisposition to transfer than those with lower integration levels. Academic and social integration are concepts which emerge from Tinto's (1975; 1993) research. Tinto's theory suggests that students are more likely to achieve in college when they become integrated into the academic and social milieu of their campus environments. In this theory, positive integration leads to increased levels of commitment to goals and to students' respective institutions, which in turn, leads to enhanced success.

Other research has examined the effect of academic and social integration on transfer. Findings have generally suggested that while Tinto's work has been used as a predominant framework to examine transfer, background variables may be more predictive (Hagedorn, Cypers & Lester, 2008; Voorhees, 1987). For example, Wood, Nevarez & Hilton (2011) examined background variables predictive of transfer, finding several groups with lower odds of transfer, including: older students, minorities, disabled students, students with dependents, part-time enrollees, and low-income students. Further, Dougherty & Kienzl (2006) identified several variables predictive of transfer among community college students. They found that students with higher socio-economic status, higher grade point averages, greater educational aspirations and younger students were more likely to transfer. However, they did not find academic and social integration to be significantly predictive of transfer. The only exception to this was one measure of academic integration – students' level of participation in study groups – which did serve to impact their transfer. This finding regarding the relative inadequacy of academic and social integration to predict

transfer is also substantiated by work from Napoli & Wortman's (1996). Findings from their meta-analysis suggested that integration is predictive of persistence but not necessarily transfer.

The scholarly literature has generally overlooked the importance of environmental variables. As noted by Bean and Metzner (1985), environmental variables focus on the effect of factors external to the institution (e.g., work, familial obligations, life circumstances) in 'pulling' students away from their academic commitments (Mason, 1994, 1998; Wood & Turner, 2011). These factors detract from the time, attention, and energies that students can place in academic matters, limiting their ability to become academically engaged.

This particular study examined the effect of environment on transfer. In keeping with extant literature, other factors *potentially* relevant to transfer were examined in this research, including background variables as well as (the disputed) measures of academic and social integration. As such, this study sought to identify variables in several domains (background, academic, social, and environmental variables) which serve as determinants of transfer.

Method

This study employed data from the Beginning Post-secondary Students Longitudinal Study (BPS: 2003/2009). BPS is a national sample of postsecondary students which is designed to monitor factors affecting collegiate success (U.S. Department of Education, 2009a, 2009b). Data from this study were originally collected from entering college students during the 2003-04 academic year, with subsequent follow-up collections at three (2006) and six years later (2009). Data in this study are analyzed using a logistic regression approach where students who entered college in 2003 and transferred to a four-year college by 2009 are coded '1' and students who did not transfer are coded '0'. The population of this study was delimited to 2,200 public-two year collegians who noted during the first wave of BPS that they intended to transfer in 2003. The following variables were employed in this study:

- Demographic variables – age (continuous), gender (male coded '1', female coded '0'), racial/ethnic status (White coded '1', minority coded '0'), high school GPA (2.5 or higher coded '1', lower than 2.5 coded '0'), and generation status (first generation coded '1', non-first generation coded '0').
- Academic (integration) variables– informal meetings with faculty, talking with faculty outside of class, meeting with an academic advisor, and participation in study groups (variables coded '1' for yes and '0' for no).

- Social (integration) variables – attend fine arts activities, participation in school clubs, and participation in school sports (variables coded '1' for yes and '0' for no).
- Environmental variables – finances (as assessed by income percentile rank, continuous), hours worked per week (continuous), dependent children (yes coded '1', no coded '0'), financial help from parents (yes coded '1', no coded '0').

Four additive models of transfer were computed. The first model examined background variables in isolation; the second included background variables as well as measures of academic integration. The third model added social integration variables while the third model added environmental variables. Data are presented in the form of odds ratios (Rudas, 1998).

Findings

Model One

Data from the first model examined background variables in isolation. This model identified three significant variables. With respect to age, older students were less likely to transfer than younger students. In fact, for each year increase in age, the odds of transferring decreased by approximately 27 % ($p < .001$). Prior academic performance (as measured by grade point average) is also a determinant of transfer. For simplicity, students GPA's were dichotomized into two groups, those with less than a 2.5 and those with a GPA at 2.5 or above. Those in the latter group had a greater odds of transferring, by 58.8 % ($p < .01$). Whether a student is first generation was also found to be significantly predictive. First generation students have a lower odds of transferring than non-first generation students. In fact, first generation students were 46.1 % less likely to transfer ($p < .001$). In isolation, background variables examined in Model One were predictive of transfer (Wald $F = 12.502$, $p < .001$), however these variables only accounted for 5% of the variance in transfer.

Model Two

In the second model, measures of academic integration were included with background variables. As with the previous model, age, high school GPA, and generation status were predictive of transfer. For every year increase in age, students had a lower odds (by 22.6%) in transferring ($p < .001$). Students with greater high school GPAs were also more likely to transfer. Those with a GPA of 2.5 or higher had a greater odds (55.1%) of transferring than those with a GPA below 2.5 ($p < .05$). Further, the odds of a first generation student transferring were 43.3% lower than that of their non-first generation counterparts ($p < .001$).

Three of the four measures of academic integration were also predictive of transfer. In general, greater levels of integration were positively associated with transfer. Students who talked with faculty members outside of class had a greater odds (by 41.1%) of transferring than those who did not ($p < .05$). Meeting with an academic advisor was also predictive of transfer. The odds of a student transferring were 46.0% greater when they met with their advisors in comparison with those who did not ($p < .05$). Moreover, participation in study groups was an indicator of likelihood to transfer, with students who engaged in this type of integration having a greater odds (by 51.2%) of transferring than those who did not ($p < .05$). In all, while the second model (inclusive of background and academic integration variables) was predictive of transfer (Wald $F = 9.692$, $p < .001$), this model only accounted for 7% of the variance in transfer (see Table 1, page 4).

Model Three

The third model extended this analysis of transfer predictors of measures of academic integration. As with the first model, age, high school GPA, and first-generation status were significant predictors. With respect to student age, for each year increase in age the odds of transferring decreased by 20.7% ($p < .001$). Students with a high school GPA of 2.5 or higher had a greater odds of transferring (by 53%) than their peers with GPAs below 2.5 ($p < .05$). First generation status was negatively associated with transfer, as first generation students had a lower odds (by 56.0%) of transferring than their non-first generation peers ($p < .001$). In contrast to the second model, no measure of academic integration was significant in the third model ($p = n.s.$).

Of the three measures of social integration employed, two were significantly predictive of transfer. For instance, the odds of a student transferring was 65.8% greater for those who participated in school clubs ($p < .01$). Engagement in school sports was also found to be a transfer determinant. Students who participated in varsity or non-varsity (intramural or club) sports had a greater odds (by 139%) of transferring than those who did not ($p < .001$). This model (inclusive of background, academic integration, and social integration variables) was significantly predictive of transfer (Wald $F = 10.952$, $p < .001$), and accounted for 9% of the variance in transfer.

Model Four

The final model also illustrated that the background variables for age, high school GPA, and generation status were significant. For every year increase in age, the odds of transferring decreased by 15.1% ($p < .05$). Prior academic performance was indicative of transfer, as students with a high school GPA of 2.5 or higher had a significantly greater odds (by 46.4%) of transferring than those with GPAs be-

low 2.5 ($p < .05$). First generation students, as with previous models, were less likely than their non-first generation peers to transfer. The odds of a first generation student transferring were 40% lower than that of their counterparts ($p < .001$). As with third model, none of the academic integration variables were significantly related to transfer after the introduction of social integration variables.

Two of the three social integration variables examined were transfer determinants. Students who participated in school clubs had a greater odds (by 47.8%) of transferring than those who did not ($p < .05$). Further, students who participate in sports (varsity or non-varsity) had a greater odds (by 185%) of transferring ($p < .001$). Two of the four environmental variables were also significant predictors of transfer. This study illustrated that the more hours worked per week the less likely a student is to transfer. In fact, for every hour increase in working per week, the odds of transferring decreased by 2.5% ($p < .001$). Further, students with children were less likely to transfer. The odds of a student with dependent children transferring were 42.9% lower than that of students with-

out children ($p < .01$). While the fourth model (inclusive of background, academic integration, social integration, and environmental variables) was significantly predictive of transfer (Wald $F = 9.486$, $p < .001$), the model only accounted for 12.7% of the variance in transfer.

Discussion and Future Research

Findings from this study correlate with previous research which points to the importance of background variables, particularly youthfulness and prior academic performance as determinants of transfer (see Hagedorn et al., 2008; Voorhees, 1987). Consistent with other previous research (Dougherty & Kienzl, 2006; Napoli & Wortman, 1996), this study has illustrated that academic integration is minimally predictive of transfer. That being said, it appears that social integration variables may offer *some* insight into the transfer phenomenon, especially for students involved in school clubs and sports.

This study also suggests that environmental variables examined in this study provide some additional

Table 1. Odds Ratios of Non-Nested Models

	Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	0.728***	[0.64-0.81]	0.774***	[0.67-0.88]	0.793***	[0.69-0.90]	0.849*	[0.73-0.97]
Gender (Male)	1.025	[0.79-1.32]	1.070	[0.80-1.42]	0.967	[0.72-1.29]	0.975	[0.72-1.30]
Race/Ethnicity (White)	1.276	[0.95-1.70]	1.292	[0.92-1.80]	1.285	[0.91-1.80]	1.320	[0.90-1.91]
HS GPA (2.5 or above)	1.588**	[1.15-2.18]	1.551**	[1.10-2.17]	1.530*	[1.07-2.17]	1.464*	[1.03-2.08]
Generation status	0.539***	[0.40-0.72]	0.567***	[0.42-0.75]	0.560***	[0.42-0.74]	0.600***	[0.44-0.81]
Faculty informal meeting			1.411*	[1.05-1.88]	1.216	[0.89-1.66]	1.229	[0.90-1.67]
Talk with faculty outside of class			1.460*	[1.04-2.04]	1.380	[0.98-1.93]	1.380	[0.99-1.91]
Meet with academic advisor			1.512*	[1.01-2.25]	1.388	[0.93-2.06]	1.235	[0.81-1.86]
Participate in study groups			1.261	[0.97-1.62]	1.105	[0.84-1.44]	1.084	[0.82-1.42]
Attend fine arts activities					0.968	[0.67-1.39]	0.961	[0.66-1.38]
Participation in school clubs					1.658**	[1.18-2.33]	1.478*	[1.05-2.07]
Participation in school sports					2.394***	[1.58-3.61]	2.852***	[1.85-4.39]
Finances (income percentile rank)							1.01	[0.99-1.00]
Hours worked per week							0.975***	[0.94-0.97]
Dependent children							0.571**	[0.36-0.88]
Help from parents							1.162	[0.80-1.68]
<i>df</i>	5		9		12		16	
Wald F	12.502***		9.692***		10.952***		9.486***	
Pseudo R ²	.05		.07		.09		.127	

Note: OR=odds ratio; CI=confidence interval. * $p < .05$, ** $p < .01$, *** $p < .001$.

insight into transfer. While most prior studies have found socioeconomic status to be predictive of transfer, in this study income was not a significant predictor of transfer. This contrasts with work from Cabrera, Burkum & Nasa (2005) who found transfer to be significantly associated with socioeconomic status. They noted that there was a large transfer gap between students by socioeconomic status. However, they noted that this gap was reduced when controlling for preparation, remediation, degree aspiration, peer support, financial aid, and not having dependents (children) before transferring. Given that some of these variables were also included in this model, it is possible that the effect of socio-economic status (as measured by income) was mitigated.

This study did find that hours worked per week and having dependent children were significantly predictive of transfer. This suggests that the external lives of students do, at least to some degree, result in disparate outcomes. Future research should employ qualitative procedures to examine why this occurs, in order to produce recommendations for programming that can mitigate barriers resulting from these environmental challenges.

Taking all models into account, several variables were significantly predictive of transfer, these included: a) background variables - students' age, high school performance, and generation status; b) social integration variables - participation in clubs and participation in school sports; and c) environmental variables - hours worked per week and familial responsibilities (having dependent children). While the variables examined in this study are important considerations in transfer, the low variance accounted for in all models suggests a need for further research. This study was limited by the available measures of variables in all domains (e.g., background, academic integration, social integration, environmental) examined. Thus, additional research--especially into the influence of environmental variables--is needed which expands upon the items examined in each domain.

In future research on the effect of environment on transfer, researchers should consider two primary points. First, in investigating the effect of environment on transfer, it is important to contextualize the intricacies of competing challenges and stressors (e.g., economic, social, personal), which at times, serve as obstacles to academic success (particularly for first-generation and low-income students). Second, researchers should be careful to avoid a deficit perspective; viewing environment not as a challenge to student success, but as a factor that can potentially facilitate transfer. This shift can be accomplished through identification of environmental variables (i.e., outside encouragement, validation, and expectations from family and peers) which may have a positive influence on transfer. In all, this study highlighted the influence that environment has on transfer. While most prior research

examined the effect of background, academic, and social variables on transfer, findings from this study illustrate the need of adding environmental variables to the transfer discourse.

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