An analysis of foster care placement history and post-secondary graduation rates

Angelique Day
Wayne State University

Amy Dworsky
University of Chicago

Wenning Feng
Michigan State University

ABSTRACT

Prior research has document significant disparities in post-secondary educational attainment between young adults who had been in foster care and their peers in the general population. This study uses survival analysis to compare the four-year college graduation rate of students who had been in foster care to the graduation rate of first generation, low-income students at the same university. Estimates from discrete time hazard models indicate that former foster care students graduated at a slower rate than their non-foster care peers even after controlling for gender and race. In addition, although students in poor academic standing (cumulative GPA below 2.0) graduated at the same rate regardless of whether they had been in foster care, having been in foster care had a negative effect on the graduation rate of students in good academic standing (cumulative GPA's at or above 2.0). The implications of these findings for increasing post-secondary educational attainment among college students who had been in foster care are discussed.

Keywords: Foster Youth, Transition to Adulthood, Post-Secondary Education, College Retention and Graduation

BACKGROUND AND SIGNIFICANCE

For many young adults, the real challenge when it comes to post-secondary educational attainment is not "getting into" college, but rather, persisting to degree completion (National Center for Public Policy and Education, 2010; Griffith, 2008; Alon & Tienda, 2005). For example, only 58 percent of a nationally representative sample of undergraduates who began their post-secondary education and entered a four-year college for the first time in the fall of 2003 had completed a bachelor's degree by the spring of 2009 (Radford et al., 2010).[1] Persistence seems to be particularly difficult during the first year of post-secondary education; it is during that first year that students are most likely to drop out. Twenty-four percent of the freshman who entered a four year college or university for the first time in the fall of 2008 did not return for a second year in the fall of 2009 (NCHEMS Information Center for State Higher Education Policymaking and Analysis, 2011).

For low income, first-generation college students, the risk of dropping out is particularly high. Poor academic preparation, limited financial resources, and, in some cases, a lack of family and peer support mean that low income, first-generation college students are less likely to persist to degree completion, especially during the first year, than their peers whose parents attended college (Engle, 2007). For example, the NELS Post-secondary Education Transcript Study found that four-year college students were much less likely to earn a bachelor's degree if they were the first in their family to attend college than if their parents were college educated even after controlling for other factors (Chen & Carroll, 2005). Among the low-income, first generation college students who are at high-risk of dropping out are students who had been in foster care (Cochrane & Szabo-Kubitz, 2009).

Post-Secondary Educational Attainment among Foster Youth

A significant gap in post-secondary educational attainment exists between former foster youth and their non-foster care peers. Not only are young people who had been in foster care less likely to attend college than their peers (Brandford & English, 2004; Wolanin, 2005 ; Courtney, Piliavin, Grogan-Taylor & Nesmith, 2001; Courtney, Dworsky, Cusick, Havlicek, Perez, & Keller. 2007), but moreover, former foster youth who do attend college are less likely than their peers to earn a degree (Day, Dworsky, Fogarty, & Damashek, 2011; Courtney et al., 2010; Davis, 2006).

For example, the Midwest Evaluation of the Adult Functioning of Former Foster Youth (i.e., the Midwest Study), a longitudinal study that followed a sample of more than 700 17- and 18-year olds from Iowa, Wisconsin and Illinois as they transitioned out of foster care, found that less than one third had completed at least one year of college by age 23 or 24 compared to 53 percent of a nationally representative sample of 23 and 24 year olds (Courtney et al., 2010). Moreover, just six percent of the Midwest Study participants compared with 30 percent of the nationally representative sample had earned a two- or four-year degree. Similarly, using data from the National Center for Education Statistics (NCES), only 26 percent of the foster care

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[1]

Eight percent of the undergraduates who entered a four-year college in the fall of 2003 had completed their bachelor's degree at an institution other than the one at which they started (Radford et al., 2010).

alumni who entered post-secondary education for the first time in 1995 had earned a degree or certificate by 2001 compared with 56 percent of their peers who had not been in foster care (Davis, 2006).

Barriers to Persistence in Higher Education for Foster Youth

A number of barriers can make it difficult for foster care youth to succeed in higher education. One is inadequate academic preparation. Youth in foster care may experience numerous placement changes (James, 2004; Wulczyn, Kogan, & Jones-Harden, 2003)), and those placement changes may interrupt their primary or secondary education (Trout, Hagaman, Casey, Reid, Epstein, M.H., 2008). Even if youth in foster care graduate from high school, they may not academically prepared for post-secondary education. Studies have shown that foster youth are much less likely to take college preparatory courses in high school than their peers (Blome, 1997; Sheehy et al., 2001) even when the two groups have similar test scores and grades (Sheehy et al., 2001). This may explain why two-thirds of the former foster youth attending a four-year university in California felt that the foster care system had not prepared them very well for college (Merdinger et al., 2005).

Former foster youth who lack adequate academic preparation are often required to enroll in remedial education courses during their first year in college (Brock, 2010). This is important because many students who are assigned to remedial education drop out of the classes (and often out of college), and those who stay enrolled make slow progress as remedial education delays degree attainment. One study reported that only 52 percent of four-year college students taking remedial courses finish a bachelor's degree within eight and one-half years of college entry compared with 78 percent of their non-remedial peers (Attewell, Lavin & Domino, 2006).

The education of former foster youth may also be disrupted once they enter college. Nearly half of the students in Merdinger et al.'s (2005) study had transferred in, primarily from a community college, one in five had ever withdrawn, and 16 percent were considering withdrawing (Merdinger et al., 2005).

Economic difficulties probably account for some of these disruptions. Students in the Merdinger et al. study identified their precarious financial situation as a major challenge. Likewise, the most common reason Midwest Study participants dropped out of an educational or vocational training program was the need to work (Courtney et al., 2010).

Students who had been in foster care may also fail to graduate because student services personnel at most post-secondary institutions are neither familiar with nor prepared to address their unique needs (Dworsky & Perez, 2009). Consistent with this explanation, students in the Merdinger et al. (2005) study reported not being able or not knowing how to obtain student services.

Present Study

The present study uses longitudinal data from the student information systems database of a large, Midwestern university to addresses two primary questions: (1) Do college students who had been in foster care graduate at the same rate as low-income, first generation college students at the same four-year university? (2) If students who had been in foster care and low-income, first generation college students graduate at different rates, does the academic standing of the students matter?

Although prior studies have found that foster care youth who attend college are less likely to graduate than other students (Courtney et al. 2010; Davis 2006), those studies have generally not controlled for differences in socioeconomic background between former foster youth and their non-foster peers. Nor have those studies routinely distinguished between different types of post-secondary institutions (i.e., two-year as compared with four-year; public compared with private; more compared with less selective). This means that at least some of the observed difference in graduation rates might be explained by differences in socioeconomic background or differences in institution type. We address these limitations by restricting our analysis to students at a single four-year public university and by including only first-generation, low-income students in our comparison group..

The present study adds to our knowledge about graduation rates among college students who had been in foster care in two other ways as well. First, prior research has not examined the effects of academic standing, a strong predictor of persistence, especially for minority students (Hu & St. John, 2001; Herzog, 2005) (Day et al., 2011; Courtney et al., 2010; Davis, 2006). We use grade point average to measure academic standing. Second, this is the first study we are aware of to address questions about post-secondary educational attainment among former foster youth using an event history framework (Singer & Willett, 2003). Other approaches, such as logistic regression, fail to incorporate time into their outcome measure, and do not allow predictor variables to vary over time.

METHODS

Data

The data for this study come from the student information systems database of a large, Midwestern, four-year university. This database includes information from the Registrar's Office, the Admissions Office, the Financial Aid Office, and the Budgets and Planning Office. The data had been stripped of names and other personally identifying information.

Sample

The sample included two groups: a treatment group of 444 undergraduates who had identified themselves as former "wards of the court" on the Federal Application for Student Aid (FAFSA) form and a comparison group of 378 low-income, first generation college students who did not identify themselves as former wards. The National Center for Education Statistics uses responses to the FAFSA question about "ward of the court" status to identify students who had been in foster care for its National Post-secondary Student Aid Study (NPSAS). which it conducts every three years (Davis, 2006).

The students in the comparison group comprise a stratified random sample selected from the total population of 6,202 undergraduates who (1) reported that neither of their parents had a college degree and (2) whose taxable family income for the preceding year did not exceed 150 percent of the federal poverty level. Using these criteria increases the likelihood that the socioeconomic backgrounds of the two groups would be similar because the birth families of foster care youth are disproportionately poor (Goerge et al., 2002). The population was stratified by year of first enrollment and a random sample was selected from each year's cohort. The

number of students randomly selected was approximately equal to the number of self-identified former court wards who first enrolled in that year.

Measures

Dependent variable. Because the event of interest is graduation from college, the dependent variable is the number of consecutive semesters in which students were enrolled at the four year university before they graduated. This duration is referred to as a failure time (Raykov 2011) even when the event of interest is a "positive" outcome as it is in this case.

Independent variables. The main independent variable, "ward of the court" status, is a time invariant covariate. It was as measured based on responses to the FAFSA question. Gender and race (i.e., White, African American, Other) were also included as time invariant covariates in the models.

Academic standing was also included in the models as a dichotomous, time-varying covariate lagged by one semester. "Good academic standing" was defined as having a cumulative GPA of a 2.0 and above. This cut point was chosen because students at this university are placed on academic probation if their GPA falls below 2.0 and are formally dismissed if their GPA remains below 2.0 the following semester.

Outcomes

The primary outcome measure is the discrete time hazard h(ij), which Singer and Willett (2003) define as the conditional probability individual i will experience an event during time period j, given that individual i, did not experience the event during an earlier time period. This can be expressed as $h_{ij}=Pr\{T_{i=j}\,|\,T_{i\geq j})$, where T_i is individual i's failure time. As the value of h at time (t) increases so, too, does the probability of the event. In this case, the event is graduation from a four-year university and the discrete-time hazard measures how graduation rates changes over time.

Data Analysis

The data were analyzed using an event history framework and discrete time hazard models. Discrete time hazard models are appropriate for two reasons. First, our data are interval censored. That is, we know the semester in which events occurred but not the exact dates. Second, some of the observations were right censored. A case is right censored if the observation period ends before the individual has experienced the event (Raykov, 2011). Observations were right censored if a student had dropped out or if a student were still enrolled at the end of the observation period. The maximum observation period was 21 semesters.

Several discrete time hazard models were estimated. Model 1, which includes only time period dummies for the 21 semesters, provides an estimate of the baseline hazard. Model 2 estimates the main effect of "ward of the court" status on the baseline hazard. Model 3 is the same as Model 2 except that it adds estimates for the main effects of gender and race. Model 4 is the same as Model 3 except that it adds estimates for the main effect of academic standing. All four of these models assume that the effect of "ward of the court" status is constant across semesters. By contrast, Model 5, which includes interactions between "ward of the court" status and each semester dummy, allows the effect of "ward of the court" status to vary over time.

Parameter estimates from a discrete-time hazard model can be converted into estimated hazard ratios by exponentiating the coefficients. Because all of the covariates in these models are categorical, an estimated hazard ratio significantly greater than one means that the independent variable is associated with an increase in the hazard whereas an estimated hazard ratio significantly less than one means that the independent variable is associated with a decrease in the hazard.

FINDINGS

Table 1 (Appendix) shows the status of the students at the end of the observation period. Although graduates comprised the largest percentage of both groups, former court wards were less likely to have graduated than their comparison group peers (40% vs. 74%).

Male students and female students were equally likely to have graduated, but African American students were less likely to have graduated than White students or students of another race. Moreover, students in good academic standing were more likely to have graduated than students in poor academic standing.

The median lifetime, which can be thought of as the "average" time to the event of interest (Keiley & Martin, 2005), is the point at which half the sample has experienced the event and the value of the estimated survival function is .50. The median lifetime was 11 semesters for the former court wards and 10 semesters for the comparison group.

Table 2 (Appendix) shows the parameter estimates from the first four discrete-time hazard models. The parameter estimates for Model 1 suggest that the hazard of graduation peaks during semesters 14, 15, and 16 and then begins to decline. The parameter estimate for "ward of the court" status in Model 2 is statistically significant, and the estimated hazard ratio is exp(-.42) or .657. This means that students who had been in foster care graduated at about two-thirds the rate of other low-income, first generation students.

The parameter estimate for "ward of the court" status in Model 3 is still statistically significant after controlling for race and gender. Moreover, although gender has no effect on the hazard, race does. Being African American as compared to White reduced the estimated hazard of graduation by 64 percent (1-exp (-1.01)) and being of another race as compared to being White reduced the estimated hazard of graduation by 30 percent (1-exp(-.35)). The parameter estimates for "ward of the court" status and race are still statistically significant in Model 4 as is the parameter estimate for academic standing. In addition, being in poor academic standing (i.e., having a cumulative GPA below 2.0) reduced the estimated hazard of graduation by 81 percent (1- exp (-1.64)).

Finally, the parameter estimates for Model 5, which are shown in Table 3 (Appendix), indicate that the hazard for the former court wards was significantly higher than the hazard for the comparison group during semester 5 but significantly lower than the hazard for the comparison group during semesters 10, 11 and 13.[2]

Figure 1 (Appendix) graphically depicts the estimated hazard from Model 2 for the former court wards and the comparison group. The curve for former wards is generally below the curve for the comparison group because "ward of the court" status has a negative coefficient.

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[2] Students could have graduated in less than 8 semesters if they had transferred in from a community college or another four-year school. These data suggest that the ward of the court group may have included a disproportionately high number of transfer students. Unfortunately, transfer students were not flagged in the data.

Figure 2 (Appendix) graphically depicts the estimated hazard from Model 5, which allowed the effect of "ward of the court" status to vary over time.   No significant effect is observed until semester 5, when the curve for the former wards is above the curve for the comparison group. The effect of "ward of the court" status then disappears until semester 10, when the curve for the comparison group is above the curve for the former wards, Although this trend continues through semester 16, the effect is only statistically significant in semesters 11 and 13. Beyond semester 16, the sample becomes too small to compare the hazards.   Figure 3 (Appendix) graphically depicts the combined effects of "ward of the court" status and academic standing. The two curves for students who had been in foster care shows that the graduation rate was higher for those in good academic standing than those in poor academic standing. Likewise, the two curves for students who had not been in foster care shows that the graduation rate was higher for those in good academic standing than for those in poor academic standing. In other words, being in good academic standing was associated with a higher graduation rate than being in poor academic standing regardless of "ward of the court" status.

The two curves for students in poor academic standing shows that students who had been in foster care graduated at about the same rate as their peers who had not been in foster care. However, comparing the two curves for students in good academic standing shows that the graduation rate was lower for those who had been in foster care than for their peers who had not. In other words, being a former ward of the court was associated with a lower graduation rate, especially among students in good academic standing.

DISCUSSION

We began this study with two primary questions. First, do students who had been in foster care graduate from college at the same rate as other low-income, first generation students? Second, if students who had been in foster care do not graduate from college at the same rate as other low-income, first generation students, does the difference in graduation rates depend on academic standing?

With respect to the first question, we found that students who had been in foster care graduated at a slower rate than a comparison group of low-income, first generation students at the same four-year university. This is consistent with the results of earlier studies showing that foster care alumni are less likely than their non-foster care peers to have a college degree (Courtney et al., 2010; Pecora et al., 2006).

As to the second question, we found that the difference in graduation rates between former court wards and their peers who had not been in foster care was concentrated among students in good academic standing. In other words, graduating from college remains a major challenge for students who had been in foster care even if they are achieving academically.

Taken together, these two findings have both policy and practice implications. First, the disparity in college graduation rates that we observed between former court wards and their peers suggests that students who had been in foster care may arrive on campus with more needs than the typical low-income, first generation college student. The former may need additional guidance when it comes to figuring out which courses to take and in what sequence to take them or how to choose a major and fulfill the requirements. Students who had been in foster care may also be less likely than their peers to have informal networks of social support to which they can turn to when problems arise or they are feeling stressed (Mitchell & Trickett, 1980; Mendes, 2006).

Academic advisers and faculty members may be able to help fill this void by providing both academic and social support to students who had been in foster care (McGillin, 2003). Access to faculty and community mentors has been shown to increase student persistence (Haussmann, Schofield, & Woods, 2007). Relationships with advisers or professors may be especially important for new students while they are trying to adjust to campus life (McGillin, 2003).

Peers, particularly peers who have had similar life experiences, can also play a critical role. Students feel a stronger sense of belonging and perform better academically when they have frequent interactions with other students like themselves (Ostrove & Long, 2007). Colleges and universities that actively recruit students who are or were in foster care and provide regular opportunities for these students to interact may increase their odds of persisting until they graduate (Fletcher & Tienda, 2008). Schools can also enlist the help of foster care alumni who are upper-level students to mentor incoming students who had been in foster care.

When foster care alumni who have dropped out of college are asked about their reasons for dropping out, they often mention needing to work, child care responsibilities and falling behind in school (Courtney et al., 2010; Merdinger et al., 2005). Although we do not know how much any of these problems may have contributed to the lower graduation rates we observed among the former foster youth in our study, they may have played a role. Thus, students who had been in foster care may also benefit from on-campus supports such as a family resource center or tutoring (Merdinger et al., 2005) as well as assistance applying for financial aid.

This has certainly been the rationale behind the growing number of college retention programs that provide former foster youth with a wide array of services and supports to help them succeed in school and graduate. No two programs are alike, but many offer year round housing and targeted financial aid targeted to the population (Dworsky & Perez 2009). The findings from this study clearly indicate a need for more of these campus-based, student support programs aimed at former foster care youth. Although most of these programs have been funded by foundations and private donors, federal and state resources should be used to promote their development and evaluation.

Additional research is needed to address a number of this study's limitations. First, the data did not identify students who had transferred from another college or university. The college experience of transfer students, particularly if they coming from a community college, may be quite different from those of students who enroll in four-year university immediately after high school. It is likely that at least some of the students in this study who graduated in less than 8 semesters had transferred from another school. Future studies should control for transfer status because it could affect graduation rates and because the likelihood of being a transfer student may depend on whether the student had been in foster care.

Second, the data did not include information about prior academic performance, such as high school GPA or college entrance exam scores, which at least some studies have found to predict college success (Griffith, 2008). If students who had been in foster care were less academically prepared for college than the typical low-income, first generation student, this may have contributed to the differences in graduation rates that we observed. Testing this hypothesis would require studies that control for prior academic performance.

Third, the data we received from the student information systems database were de-identified and did not include dates of birth. Had we been able to determine student age, we would have to be able to examine whether a relationship existed between the graduation rate of

students who had been in foster care and the loss of Education and Training Voucher program eligibility after the age of 23.

Fourth, although the approach we used to identify students who had been in foster care has been used in prior research, responses to the FAFSA question are not a perfect measure. Some students may choose not to disclose their status as a former ward for fear of being stigmatized. Others may be confused by the terminology. It was, however, the best available indicator.

Finally, our analysis was limited to students at a single large four-year public university. Additional studies are needed to test whether the findings generalize not only to other large public four-year universities but also to different types of institutions, including both private and two-year schools, and to other regions of the U.S.

CONCLUSION

Changes in the U.S. economy have made post-secondary education more important than ever for youth in foster care.[3] Both the federal Education and Training Voucher program and state tuition waiver programs (Eilertson, 2002; Spigel, 2004) have increased their access to post-secondary education. However, access is no guarantee of degree completion. We found that four-year college students who had been in foster care graduate at a slower rate than low-income, first generation students at the same university. Moreover, this disparity in graduation rates was concentrated among students in good academic standing. These results highlight the need for colleges and universities to provide students who had been in foster care with both tangible (e.g., financial aid, childcare, housing, work study) and intangible (e.g., relationships with faculty and staff, opportunities to interact with fellow students who had also been in foster care) supports not only when they first enroll but until they graduate.

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[3] For example, over the course of their lifetime, individuals with an Associate's degrees will earn, on average, 32 percent more and individuals with a Bachelor's degree will earn, on average, 74 percent more than individuals with just a high school diploma (Carnevale, Rose & Cheah, 2011).

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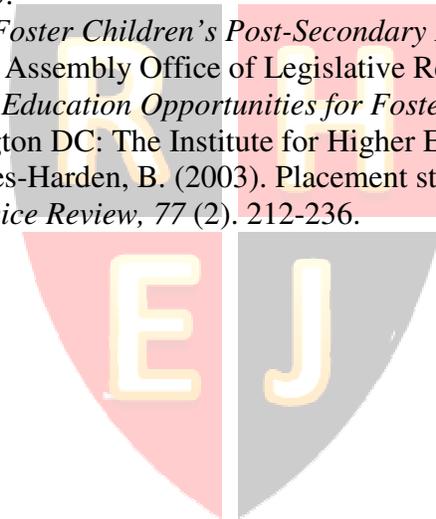
Table 1: Enrollment Status of Students at the End of the Observation Period

	N	Graduated		Dropped Out		Currently Enrolled	
		#	%	#	%	#	%
Ward of the Court Status [d]							
Not a former court ward	368	274	74.0	68	18.0	26	7.0
Former court ward	444	176	40.0	146	33.0	122	27.0
Gender							
Male	319	168	53.0	88	28.0	63	20.0
Female	493	282	57.0	126	26.0	85	17.0
Race [e,f]							
White	365	232	64.0	77	21.0	56	15.0
African American	320	142	44.0	109	34.0	69	22.0
Other [s]	127	76	60.0	28	22.0	23	18.0
Academic Standing [g]							
Good Academic Standing [b]	686	442	64.0	115	17.0	129	19.0
Poor Academic Standing [c]	125	8	6.0	99	79.0	18	14.0
Total	812	450	55.0	214	26.0	148	18.0

Notes:

[a] Other includes students who identified themselves as American Indian, Latino and/or Asian American.

[b] Cumulative GPA of 2.00 and above

[c] Cumulative GPA of 1.99 and below

[d] Statistically significant difference in graduation rate between former court wards and non-wards ($p < .05$)

[e] Statistically significant difference in graduation rate between White students and African American students ($p < .05$)

[f] Statistically significant difference in graduation rate between students of another race and African American students ($p < .05$)

[g] Statistically significant difference in graduation rate between students in academic standing and students in poor academic standing ($p < .05$)

**Table 2: Parameter Estimates from Discrete Time Hazard Models 1 – 4 Predicting College Graduation**

| Covariates	Model 1		Model 2		Model 3		Model 4	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Semester 1	-19.57	377.39	-19.35	376.30	-19.06	371.30	-18.97	367.30
Semester 2	-19.57	382.37	-19.36	381.20	-19.06	376.20	-18.98	372.40
Semester 3	-5.91***	0.71	-5.70***	0.71	-5.44***	0.71	-5.41***	0.71
Semester 4	-4.32***	0.34	-4.13***	0.34	-3.87***	0.35	-3.85***	0.35
Semester 5	-3.21***	0.20	-3.02***	0.21	-2.75***	0.23	-2.74***	0.23
Semester 6	-2.97***	0.19	-2.79***	0.20	-2.52***	0.21	-2.50***	0.21
Semester 7	-3.12***	0.21	-2.94***	0.22	-2.67***	0.23	-2.65***	0.23
Semester 8	-2.50***	0.17	-2.33***	0.18	-2.05***	0.20	-2.03***	0.20
Semester 9	-1.71***	0.13	-1.53***	0.14	-1.21***	0.17	-1.18***	0.17
Semester 10	-1.47***	0.14	-1.29***	0.14	-0.91***	0.17	-0.87***	0.17
Semester 11	-1.07***	0.14	-0.89***	0.15	-0.45*	0.18	-0.40*	0.18
Semester 12	-1.08***	0.17	-0.87***	0.18	-0.37	0.21	-0.31	0.21
Semester 13	-1.06***	0.22	-0.87***	0.22	-0.33	0.25	-0.27	0.25
Semester 14	-0.69**	0.26	-0.51	0.27	0.06	0.29	0.11	0.29
Semester 15	-0.21	0.33	-0.02	0.33	0.60	0.35	0.66	0.36
Semester 16	0.00	0.47	0.23	0.48	0.92	0.50	0.93	0.50
Semester 17	-1.61	1.10	-1.41	1.10	-0.67	1.12	-0.59	1.13
Semester 18	-1.39	1.12	-1.15	1.12	-0.43	1.14	-0.34	1.17
Semester 19	-0.69	1.22	-0.42	1.23	0.14	1.26	0.08	1.26
Semester 20	-19.57	10754.01	-19.15	10750.00	-19.28	10750.00	-19.36	10750.00
Semester 21	19.57	10754.01	19.99	10750.00	19.85	10750.00	19.77	10750.00
Ward of the Court Status (Former Ward = 1)			-0.42***	0.11	-0.40***	0.11	-0.26*	0.11
Gender (Female = 1)					0.11	0.11	0.05	0.11
Race (African American = 1)					-1.01***	0.12	-1.00***	0.13
Race (Other = 1)					-0.35*	0.15	-0.29	0.15
Academic Standing (Poor = 1)							-1.64***	0.38

*** P-value<0.001, ** P-value<0.01, * P-value<0.05

Table 3: Parameter Estimates from Discrete Time Hazard Model 5 Predicting College Graduation

	Coefficient	SE
Semester 1	-19.57	560.60
Semester 2	-19.57	563.70
Semester 3	-19.57	588.40
Semester 4	-4.68***	0.58
Semester 5	-4.64***	0.58
Semester 6	-3.03***	0.27
Semester 7	-3.22***	0.31
Semester 8	-2.42***	0.22
Semester 9	-1.59***	0.17
Semester 10	-1.03***	0.16
Semester 11	-0.58**	0.18
Semester 12	-0.88***	0.24
Semester 13	-0.62*	0.28
Semester 14	-0.45	0.34
Semester 15	0.20	0.45
Semester 16	0.51	0.73
Semester 17	-0.69	1.23
Semester 18	0.00	1.41
Semester 19	19.57	10750.00
Semester 20	-19.57	10750.00
Semester 21	19.57	10750.00
Semester 1×Ward of the court status	0.00	758.10
Semester 2×Ward of the court status	0.00	767.20
Semester 3×Ward of the court status	14.27	588.40
Semester 4×Ward of the court status	0.59	0.71
Semester 5×Ward of the court status	2.00**	0.62
Semester 6×Ward of the court status	0.11	0.38
Semester 7×Ward of the court status	0.20	0.43
Semester 8×Ward of the court status	-0.19	0.35
Semester 9×Ward of the court status	-0.29	0.27
Semester 10×Ward of the court status	-1.23***	0.32
Semester 11×Ward of the court status	-1.26***	0.32
Semester 12×Ward of the court status	-0.41	0.35
Semester 13×Ward of the court status	-1.09*	0.47
Semester 14×Ward of the court status	-0.56	0.54
Semester 15×Ward of the court status	-0.89	0.67
Semester 16×Ward of the court status	-0.92	0.97
Semester 17×Ward of the court status	-18.87	6209.00
Semester 18×Ward of the court status	-19.57	6209.00
Semester 19×Ward of the court status	-39.13	13170.00
Semester 20×Ward of the court status	NA	NA
Semester 21×Ward of the court status	NA	NA

Figure 1. Hazard of graduation: Effects of ward of the court status
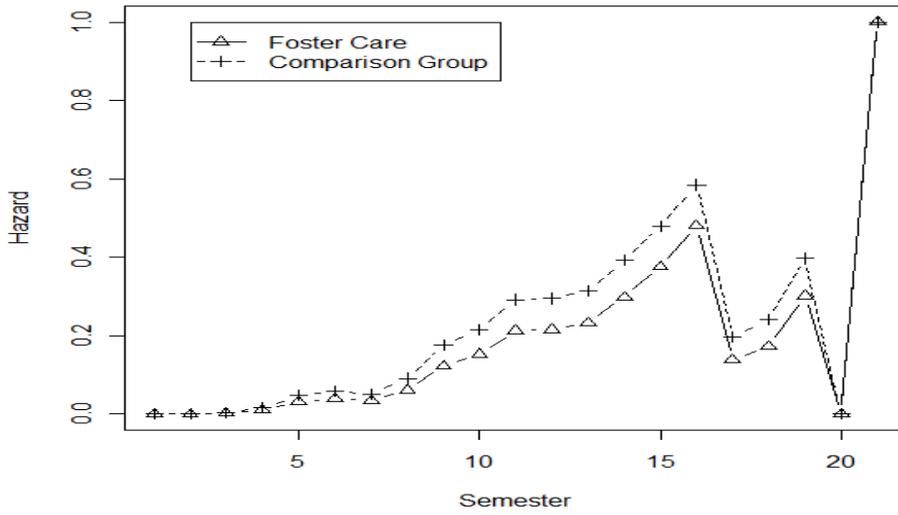
Figure 2. Hazard of graduation: Effects of ward of the court status by semester.
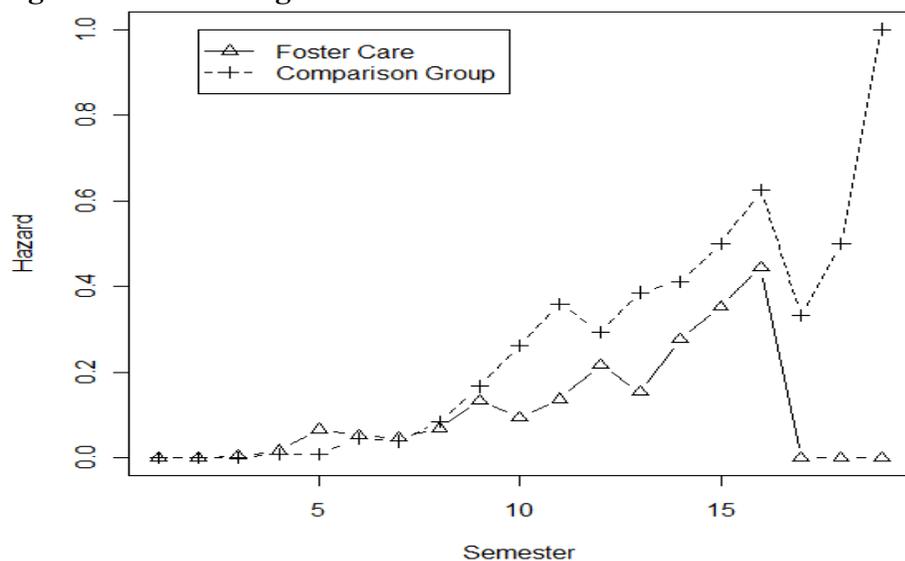
Figure 3. Hazard of graduation: Combined effects of ward of the court status and academic standing