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Do Students' Academic Capital, Knowledge and Attitudes towards Mandatory Fees, and University Knowledge Predict Their Payment Methods?

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By Emeka Ikegwuonu and Lydia Ross

Mandatory fees in higher education have increased substantially in recent years. These increases have changed the net cost of attendance for students from semester to semester. Coupled with these changes, we are witnessing an increase in students from diverse lived experiences who are traditionally unaware of costs associated with their attendance. As fees typically support services and programs that promote student retention and matriculation, students should be aware of these services and programs. Because these students have varied perceptions of costs and understandings of resources and systems in higher education, it may shape their payment methods. Our findings suggest that university knowledge, attitudes towards mandatory fees, and several of the academic capital subsets all shape student payment methods. Furthermore, race/ethnicity significantly predict how students pay for their education.

Keywords: Mandatory fees, payment methods, higher education policy, academic capital, student loan debt

Students' costs for higher education continue to rise due to multiple factors (e.g., demand for amenities, increased enrollment, *neoliberal* ideologies, and reduced state support) (Weerts & Ronca, 2006). In 2020-21 the average in-state tuition and fee price for public four-year institutions was 2.78 times more than 30 years prior (Ma et al., 2020). Similarly, the average out-of-state tuition and fees rose by 112% from 1990 to 2019 (from $4,745.79 to $16,935)[1]. Overall students' costs comprise tuition and fees. Fees are representative of costs associated with services and activities that enhance or are associated with the student experience (Kim & Ikegwuonu, 2018). Several different types of fees are associated with an undergraduate student's attendance that raises the cost of attendance based on the type of course (e.g., hybrid or in-person), where the course is located [e.g., campus building], and major [e.g., business major versus an education major] (Ikegwuonu, 2020)]. The increase in fees is not solely due to a rise in tuition, but research investigations have found a significant increase in fee costs (Kim & Ikegwuonu, 2018). In 2019, the average fees for in-state students were $1,600, with out-of-state students paying $1,800 in fees[1]. Unlike tuition, fees are not typically as routinely monitored, and administrators feel students accept fee increases because they receive something in return (Glater, 2007; Wang, 2013). Also, students perceive they know more about tuition than fees and what that revenue supports (Ikegwuonu, 2020). As a result, students' fees can range into thousands of dollars, depending upon student status (e.g., full-time, part-time, residence, major, and classification) (Arnott, 2012; Denhart & Ridpath, 2011; Kim & Ikegwuonu, 2018; Trow, 1995). Essentially, as students' demands for amenities increase, costs once absorbed by public institutions in higher education (PIHE) shift to students. Also, state support and tuition are interconnected and as one increases (tuition) the other decreases (state support) (Quigly & Rubenfield, 1993). Consequently, state and local funding of higher education has reduced as much as 30% over the past 30 years (Webber, 2017). Because public institutions are receiving less funding than in previous years it requires higher education institutions to increase their cost of attendance to cover costs associated with student demand and services traditionally provided (Jones, 2017).

The increase in fees at PIHEs may impact all students as changes in fees reflect a different total cost of attendance, as the actual price is significantly different from the sticker price shared on institutional websites (King-Alexander, 2011). Net Price Calculators (NPC) are institutional tools developed to help students estimate the cost of attendance; however, these tools are seldomly used and often do not provide accurate costs of attendance to students and their families (Levine, 2014). Also, the way information is listed and displayed on PIHE's websites may influence students' understanding of their cost of attendance, as many students that are first-generation or low-income access institutional websites from smartphones

[1] based on the authors' calculations using the Integrated Postsecondary Education Data System

(Markowitz, 2017) which can hinder access or cause confusion (Perna, 2006b). Because of the lack of information and how student's engage with institutional websites we speculate that it will influence their choices in payment methods.

There is a growing trend in higher education, where the amount, number, and type of fees have increased considerably within the last decade (Denhart & Ridpath, 2011; Kim & Ikegwuonu, 2018) as core priorities (e.g., academic and library services) once covered by PIHE have shifted to students and their parents (Cage, 1992; Cullier & Stoffle, 2011; Jones, 2017).

Current research suggests that the their experience can impact students before and after enrolling at a higher education institution (Reason, 2009; Winkler & Sriram, 2015); however, there is a lack of empirical research that understands how students' knowledge and attitudes of mandatory fees and academic capital (prior and current experience in the collegiate environment) influence student payment methods. Furthermore, first-generation students borrow less and work more than students whose parents have attended college or graduated (Burdman, 2005). These students' lack of knowledge and information can influence how they view their payment methods and the options to afford their collegiate degree while also removing them from the collegiate environment because they must work. Prior research investigations have focused on how students' knowledge and attitudes towards fees influence student engagement (e.g., Ikegwuonu, 2020) or only knowledge and attitudes toward fees pertaining to student services (Matross et al., 1975; Ott, 2009; Weichselbaum & McClelland, 1978).

This study seeks to extend the literature surrounding mandatory fees and academic capital and the influence on student behavior. Moreover, how demographic variables can shape the relationship in student's payment methods. Because PIHEs are adopting more fees to cover costs due to the reduction of state appropriation, there have been shifts in students' actual costs of attendance. In addition, students have diverse lived experiences that can influence their social, cultural, and academic capital (Bourdieu, 1986; Reason, 2009). As a result, the level of capital may not be the same for all students and changes their exposure to knowledgeable individuals or access to information to help pay for their education. As a result, these implications can influence how students' knowledge of PIHEs can help them make better decisions on financing their higher education degrees. Prior research studies have focused on students' attitudes and knowledge of student services and mandatory fees (e.g., Matross et al., 1975; Ott, 2009; Weichselbaum & McClelland, 1978), how attitudes and knowledge predict student engagement (Ikegwuonu, 2020), and the awareness of financial aid and knowledge of college costs on enrollment (e.g., Ekstrom, 1992; Perna, 2004). This research investigation extends the literature by analyzing the relationship between a) knowledge of, and b) attitudes towards mandatory fees, c) academic capital, and d) payment methods. The current investigation seeks to understand the relationship between undergraduate attitudes towards and knowledge of mandatory fees, university, knowledge, and academic capital and their payment methods.

Conceptual Framework

The study employed Bourdieu's social and cultural capital theory (Bourdieu, 1972, 1977, 1986), and the academic capital framework (Winkler, 2013; Winkler & Sriram, 2015). Because students have different lived experiences, it influences how they engage and have knowledge of PIHEs. However, not all student groups are included in policy development, especially financial policies, at institutions of higher education (Ikegwuonu, 2020) which can have adverse impacts on the most at-risk student populations. These interactions can affect how students fund their education (i.e., taking out excessive loans) or the ability to find additional resources that can alleviate the financial burden. loans for overburdened borrowers.

Social and Cultural Capital

Because students are not blank slates before their enrollment, researchers should consider how past experiences shape students' behavior in the collegiate environment. Thus, social and cultural capital can help us understand the student as a holistic individual. Social capital pertains to the existing network of

institutionalized relationships that provides a 'credential,' serving as a credit in a particular group (Bourdieu, 1986). Cultural capital embodies these credentials that help endorse social mobility for individuals. Social capital is a good indicator of students' understanding of institutional structures that include their education costs (De La Rosa, 2006). A student's socioeconomic and first-generation status are predictors of their aspirations to enter higher education (Perna, 2006a, 2006b; St. John et al., 2011). College preparation programs reflect a belief that cultural capital (knowledge of how the system works) and social capital (familiarity and access to support) help promote student success (De La Rosa, 2006; Gándara & Moreno, 2002). These intangible resources can provide a diverse perspective to students who are not familiar with these resources or programs that provide exposure to systems of higher education institutions that include tuition and fee charges and access to funding for their education (Coleman, 1988; Winkler & Sriram, 2015).

The concepts of social and cultural capital allow for a flexible framework that helps understand the inequalities in our society. Specifically, how students from low socioeconomic status backgrounds do not have the same social and cultural capital because they are not provided the same resources and programs as students with high social and cultural capital (Dumais & Ward, 2010; Nora, 2004; Sullivan, 2001).

Academic Capital

Academic capital is a framework designed by St. John, Hu, and Fisher (2011) that utilizes Bourdieu's social and cultural capital theory and academic capital theory. They define the framework as "the social processes that build family knowledge of educational and career options and support navigation through educational systems and professional organizations" (St. John et al., 2011, p. 1). The framework employs how students develop social processes that help increase knowledge and access that aids in navigating higher education institutions. The theory is rooted in human capital theory (Becker, 1975), social capital theory (Coleman, 1988), and social reproduction theory (Bourdieu, 1972). The previously mentioned theories led to the authors theorizing how students overcome obstacles and barriers in the process of gaining admittance into a higher education institution.

Academic capital was designed to measure how low-income students desire to enter post-secondary education; however, the theory does have merit for students enrolled in higher education. The theory lends itself to understanding how students from historically excluded communities overcome concerns about costs, acquire trustworthy information, establish support networks, and navigate the educational system (Winkler, 2013). As a result, Winkler's (2013) academic capital measurement tool adopts academic capital and situates it within the post-secondary education context. The tool has eight subscales that align with human capital (concern about costs), social capital (navigation of systems, support networks, trustworthy information), and cultural capital (overcoming barriers, college knowledge, familial expectations, and family uplift). Furthermore, it helps contextualize how support networks, access to trustworthy information, and understanding of education costs can shape how individual students while enrolled pay for their education. The tool has been validated through a research investigation completed by Winkler (2013) and a similar study by Ikegwuonu (2020). The addition of student background and previous experiences are essential for understanding how students understand their costs, which can shape their payment methods.

Conversely, the lack of exposure to these stratified societal systems and networks before and during enrollment can shape how students engage with information and resources. Students who are not familiar with these systems do not have symbols that help students make sense of financial information related to their attendance, which leaves them at a disadvantage (Berger, 2001).

Literature Review

Our investigation centers on two areas: a) *neoliberal* ideologies that shape policies in higher education and b) how students enrolled understand these policies and the effect on their behaviors in paying for their education. First, institutional behavior and *neoliberal* ideologies affect institutional budgets, student tuition and fees, revenues, and cost containment. Because more people from historically excluded communities and first-generation students are entering higher education, they are more susceptible to the changes in financial policies that can shape how they pay for their education after enrolling in higher education institution.

Neoliberalism in Institutional Behavior

The shifting views on higher education reflect a growing trend of the globalization of higher education as more countries and nations adopt *neoliberal* ideologies that place PIHEs in a free market, which passes costs to students. *Neoliberal* ideology includes cost-recovery and entrepreneurialism, accountability, and managerialism (Ball, 1998). There are several research investigations concerning higher education institutions utilization of entrepreneurialism, corporate accountability, and cost-recovery within the institutional context (e.g., Deem, 2001; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2009; Zemsky & Massy, 1990). However, this investigation focuses on managerialism in higher education related to corporate cost-cutting and higher education commercialization (Bauman, 1997; Deem, 1998; Miller, 1995) because of dwindling state support and increased education costs.

Because higher education institutions continue to face financial challenges, they often adopt different budgeting strategies to generate revenue and close the gap in lost state support (Kelchen, 2016). These different methods can influence enrollment as students do not know the total attendance and often react to the sticker shock at the cost of attendance, especially for low-income students (Nishimura, 2009). Also, the different tuition models discriminate against historically excluded students, who are more sensitive to price changes (Andrews & Stange, 2016). The changes in budgeting strategies can influence students in real-time on their college campuses, and often institutions shift the additional costs to students in the next academic year (Ikegwuonu, 2020). While higher education institutions try to cope with internal and external factors, they often increase tuition. Tuition increases have an antagonistic relationship with enrollment (Jackson & Weathersby, 1975; Leslie & Brinkman, 1987; Mcpherson, 1978). Aware of these trends, higher education institutions tend to shy away from tuition increases. However, fees do not have that same antagonistic relationship as tuition (Wang, 2013).

Mandatory Fees

Mandatory fees, fees incurred by all students, typically are listed and described on PIHEs' websites. Unlike programmatic fees and fees for specific colleges, that change depending on student status. These charges are incurred after enrollment and provide the net cost of attendance. The complexity of fees is daunting as they vary by institution and college. In addition, charge summaries vary by institution, and students are charged based on their characteristics (i.e., major, residency status, and course type) (Cage, 1992; Kim & Ikegwuonu, 2018; Sterritt, 2011). Along with the complexity of charges, the specific purpose of fees is vague in the description of what they support or provide, often confusing students and their parents (Wang, 2013).

In the early years of higher education, there were insufficient revenue streams to be independently sustainable (Rudolph, 1990). As a result, institutions relied on wealthy benefactors for donations and, in return, received namesakes (e.g., scholarships and buildings) (Rudolph, 1990). However, this was not a maintainable practice. Therefore, PIHEs began to use 'public subscriptions' (labor or food donated by the local community) to help reduce the financial burden. However, these subscriptions were unreliable as a cold winter, or a bad harvest can influence how much institutions received from the local community. These were the inception of mandatory fees, but the more modern uses of mandatory fees will not emerge until after the First World War, which saw institutions start to incorporate student activity fees. Shortly after numerous court cases (e.g., Board of Regents of the University of Wisconsin System v. Southworth, 2000; Carroll v. Blinken, 1992; Galda v. Rutgers, 1985; Rosenberger v. Rector and Visitors of the University of

Virginia, 1995; Smith v. Regents of the University of California, 1993) shifted the view on what mandatory fees can support. The court cases found that students had the right to determine what should be supported, and students should be able to access mandatory fee funds. Moreover, Kim and Ikegwuonu (2018) found that out-of-state and international students typically pay higher amounts of fees than their in-state peers that cover costs associated with their enrollment. The evolving nature of fees has resulted in PIHEs utilizing fees as a method to recoup lost revenue or use fees to support staff salaries (Keppler, 2010) and amenities (Cage, 1992; Levy, 1995; Trow, 1995).

Student Perception of Costs/Transparency of Costs

The understanding of costs related to higher education can be challenging for some students. In all honesty, it is hard for the average American to understand the costs associated with higher education. Ikenberry and Hartle (1998) surveyed the public and found that 56% of participants stated they know "a lot or a good amount."[2] on college costs. However, the respondents overestimated the average cost of attendance at a public four-year institution of higher education by 212%, and 99% miscalculated the total cost of attendance (Ikenberry & Hartle, 1998).

To explain the differences, scholars have used a nexus model approach (St John et al., 1996), which examines how finances relate to college experiences, persistence, and how persistence is influenced by financial expectations, actual prices, and subsidies. Several research investigations found that African American and Latino students' college aspirations are impeded at a higher rate than their white peers due to the complexity of information about college costs and financial aid (Dynarski & Wiederspan, 2012; Fitzgerald & Delaney, 2002; Flint, 1992, 1993; Hoxby & Turner, 2015). Many researchers (e.g., Flores, 2010; Kane, n.d.; Terenzini et al., 2001) consider that access to an institution, and financial information plays an essential role in matriculation and persistence. Specifically, it is not just access to information, but the information should be relevant to the student group (Perna, 2006b). Grodsky and Jones (2004) suggested that parents often overestimate the cost of attendance for their children because they base their assumptions/opinions on subjective knowledge and not evidence-based information. Due to limited access to information, these students often have to figure out their own methods of paying for their education.

Furthermore, Paulsen and St. John (2002) found that tuition and financial aid have an indirect and direct influence on college choice and are shaped by students' social class and gender. Moreover, the authors found that students from low-income and the working class are more sensitive to price increases. These students usually subsidize their cost of living through loans. Loans impact all student groups; however, a more significant percentage of students from working-class and low-income backgrounds take a break or do not return due to increased education costs.

The increase in fees at higher education institutions may affect all students as changes in fees reflect a different total cost of attendance, as the actual price is significantly different from the sticker price (Alexander, 2011). Net Price Calculators (NPC) were developed to help students estimate the cost of attendance; however, these tools often do not provide accurate costs of attendance because fees are not always included in the estimated net cost of attendance (Levine, 2014). The lack of transparency can lead to students overestimating the cost of attendance or not securing enough funds for attendance. In addition, the lack of information and additional costs may result in students choosing not to enroll due to insufficient funding.

There are previous investigations that center on payment behavior or payment methods in higher education (e.g., Bunce, Baird, & Jones, 2017; Snyder, 2001; West, Roberts, Lewis, & Noden, 2014) and how graduate students navigate their degrees and manage their costs (e.g., Battle & Wigfield, 2003; MacFagdon, 2008; Nettles & Millett, 2006; Peters & Daly, 2013); however, few of these studies are situated within the American context. Also, few are based on the undergraduate experience and use economic theories to describe behavior as a function of one's belief in obtaining their goal. Also, there is a lack of research that

[2] The authors did not define what constitutes "a lot or a good amount" concerning college costs.

centers knowledge and attitudes toward fees and academic capital as the foci that may shape students' payment methods in relation to their educational costs. This investigation is a first attempt at analyzing how knowledge and attitudes towards mandatory fees, university knowledge, and academic capital may shape how students pay for their education. Furthermore, it adds to the corpus of literature that investigates students' perceptions of costs and student payment methods. The following questions guide this research inquiry.

1. To what extent do students' knowledge and attitudes toward mandatory fees, university knowledge, and academic capital predict their payment methods?

2. To what extent do differences in demographic characteristics amongst students predict their payment methods?

Methodology

The research investigation utilized the Students Knowledge Attitudes of Fees and their Engagement (SKAFE) (Ikegwuonu, 2020) survey. The SKAFE instrument measures students' knowledge of and attitudes towards mandatory fees, university knowledge, and academic capital. Students' knowledge was measured in three parts, (a) self-perceived knowledge of a service or program, (b) self-perceived knowledge of the overall financial structures of the institution, and (c) actual knowledge (correct T/F definition of fees). Attitudes were measured by students' perceptions of a given mandatory fee. All survey items are on a four-point Likert scale ranging from *strongly disagree* to *strongly agree*. The survey was piloted and included an exploratory and confirmatory factor analysis on the SKAFE instrument (Ikegwuonu, 2020). Student payment was operationalized by students self-reporting the amount and type of aid they receive (e.g., loans, grants, and scholarships).

The survey was administered to undergraduate, full-time, on-campus students from January 2020 until April 2020. The study site was located at a regional institution in the southwest United States. The survey was made available to on-campus students via email. In addition, participants were offered a $10 Starbucks gift card to complete the survey. The sample (N=371) does not reflect the student body (e.g., race, gender, and student year); however, findings still add to the research literature. The table below outlines the sample population.

Table 1

Demographic Characteristics of Sample

	n	%
Gender		
Female	272	73.3
Male	95	25.6
Prefer not to say	1	0.3
Prefer to self-identify	3	0.8
Ethnicity		
Asian	45	12.1
Black/African American	47	12.7
Hispanic/Latino(a/x)	73	19.7
White, Non-Hispanic/Latino(a/x)	176	47.4
Multi-racial	17	4.6

Other	7	1.0
Class		
First year	135	36.4
Second year	90	24.3
Third year	83	22.4
Fourth year	53	14.3
Fifth year	5	1.4
Transfer	5	1.4
Major		
Social and Behavior Sciences	235	63.3
Health & Life Sciences	103	27.8
Math, Physical Sciences, Engineering & Technology	24	6.5
Humanities	9	2.4

Analytic Strategies

Because the data did not pass the proportional odds assumption test, a multinomial logistic regression model with relative risk ratios was employed. Multinomial modeling simultaneously fits binary logits among all categories, which provides a less constraint model but is more complex and cannot be used across categories. This model unlike ordinal regression does not have intrinsic ordering and no association between the levels. The *b* represents the base outcome of the model and is often referred to as the reference category. For this investigation, the base category will be the lowest amount for all categories in the dependent variable. For the regression models, the $0 group represents the base.

Three multinomial regression models were conducted to address the research investigation to determine how race, gender, academic capital, attitudes, and knowledge towards mandatory fees influenced payment methods. For scholarships and loans, participants reported receiving funds in the following amounts: $0, $500 – 1,500, $1,501 – 3,500, $3,501 – 5,500, or above $5,500. Students reported receiving grants in the following amounts: $0, $500 – 700, $701 – 900, $901 – 1,000, $1,001 – 2,000, or above $2,000.

Findings

Three multinomial logistic regressions were run to determine which factors were significant predictors of payment methods. All three models reported significant relationships between independent variables predicting payment methods. The relative risk ratios presented below are all in relation to the $0 reference group. Model fit statistics are presented in appendix A, and model summaries are presented in Appendix B – D.

Scholarships

For scholarships, participants reported receiving funds in the following amounts: $0, $500 – 1,500, $1,501 – 3,500, $3,501 – 5,500, or above $5,500. There were no significant differences in scholarships received by demographic factors, including race, gender, and Pell status ($p > .05$). For the second level ($500 – 1,500), Pell recipients were significantly more likely to receive a scholarship than those who did not (RRR = 2.30, p

<.05). For the very top-level scholarship recipients (above $5,500), those students with higher *family uplift* scores (RRR = 0.65, p <.05) and *college knowledge* (RRR = 0.51, p <.05) were significantly more likely to receive the highest level of scholarships. Furthermore, higher scholarship levels were also associated with more positive attitudes (RRR = 1.23, p <.05).

Grants

For grants, participants reported receiving funds in the following amounts: $500 – 700, $701 – 900, $901 – 1,000, $1,001 – 2,000, or above $2,000. For all four levels of grant money received, Pell students were significantly more likely to receive grants than those who did not receive any grant funding (p <.05). Specifically, those who receive a Pell grant are the most likely to receive a grant in the $1,000 to $2,000 range (RRR = 151.82, p <.05). Additionally, for the $1,000 to 2,000 range, *concern about costs* and *college knowledge* were significantly associated with higher levels of grant money (RRR = 0.59 and 1.56, respectively, p <.05). The only significant predictor for the highest grant level was Pell status (RRR = 594.60, p <.05).

Loans

For loans participants reported receiving funds in the following amounts: $500 – 1,500, $1,501 – 3,500, $3,501 – 5,500, and above $5,500. In this model, race was a significant predictor of loan amounts across all levels (p <.05), apart from the $3,501 – 5,500 range. As the dollar amount of loans increased, African American/Black students were significantly more at risk for taking loans out to pay for their higher education costs when compared to their Asian counterparts (see Table 4 for a detailed breakdown). Specifically, African American/Black students had the highest probability of taking out loans at the highest level, above $5,500 (RRR = 21.52, p<.001), with the next highest group being white students (RRR = 6.52 p<.001). Those with higher university knowledge were more likely to take out loans in the $1,501 to 3,500 range (RRR = 1.13, p <.05). Those with greater academic capital in *navigation of systems*, *supportive networks*, *overcoming barriers*, and *familial expectations* for the mid-level loan ranges were associated with greater loans taken out (p <.05). Lastly, positive attitudes towards mandatory fees were associated with greater odds of taking out loans (p <.05), except for the lowest level ($500 – 1,500).

Discussion

The current research inquiry aimed to understand (a) do racial differences amongst students and (b) how knowledge and attitudes towards mandatory fees, university knowledge, and academic capital predict payment methods. The findings from this investigation assist with understanding student payment methods and that historically excluded students have relied on loans more than any other group of students.

How Do Students' Knowledge and Attitudes Towards Mandatory Fees, University Knowledge, and Academic Capital Predict Their Payment Methods?

Scholarships

The results from the analysis found that academic capital and attitudes have a predictive relationship in student payment methods. However, we did not find a statistically significant relationship between knowledge (either of university or knowledge of mandatory fees) and student payment methods. Instead, we found that attitudes towards fees and two of the academic capitals: *college knowledge* (students' access to general knowledge about college from people within their network and lives (Winkler & Sriram, 2015) and *family uplift* (students' desire to achieve more, both in life more broadly and education than previous family members (Winkler & Sriram, 2015) were significant at the highest interval (above $5,500). Students who report higher levels of these two academic capitals show that they have access to knowledgeable individuals

who can help navigate the collegiate environment and find resources to aid in their successful matriculation through their academic journey. Thus, supporting the research that suggests that greater awareness of financial options corresponds with college persistence and completion (Burdman, 2005; Ekstrom, 1992; Perna, 2004).

The lack of capital can relate to the amount of scholarship and grant monies that go unclaimed every year. Over the last ten years, an estimated $100 million in scholarship money was unclaimed, and an estimated $2.6 billion in Pell grants was left unclaimed in the 2018-19 academic school year (Perna, 2021). There are efforts to help students connect with these resources, but there are gaps in how the information is given to students or expose students to knowledgeable individuals that can help with filling out the forms. Furthermore, applications for scholarships can be time-consuming and often require students to complete the Federal Application for Financial Assistance (FAFSA). Numerous research investigations (e.g., Bettinger, 2015; Deming & Dynarski, 2010; Dynarski & Scott-Clayton, 2006; Dynarski & Wiederspan, 2012) found how the FAFSA can be a hindrance to students and parents in the ability to complete the form as efforts are continual in creating a simplification form for aid and provide assistance to those in need.

Grants

Unlike the other payment methods, grants have very few statistically significant relationships. The findings suggest that there is a significant relationship at the lowest interval with *overcoming barriers* (the ability to overcome obstacles that can hinder their success/persistence at their institutions of higher education (Winkler & Sriram, 2013) and *concerns about costs* at the $1,000 - $2,000 range. Because students become more aware of resources and connect with knowledgeable people, their ability to find additional resources can increase. We may find that as students matriculate through the institution, they overcome barriers, learn new information, and are provided with opportunities for grants. Similarly, we find that in the $701-900 range, there is a significant relationship with university knowledge. This supports that as students matriculate through the institution, they learn more about their institution and where resources are located. Finding these resources or connecting with a faculty/staff member can directly reflect the capacity to increase their knowledge of the institution and overcome barriers while enrolled. Conversely, the Pell eligibility was a significant predictor at all intervals in predicting students' grant amounts. This can coincide that students have to be Pell-eligible to receive grants from the onset.

Loans

Compared to the other two payment methods, loans had the most statistically significant relationship with academic capital. We found that Pell eligibility was statistically significant; however, as previously mentioned, most students need to complete the FAFSA forms to receive federal loans, which evaluates if they are Pell-eligible and in need of additional funds. Conversely, Pell recipients are less likely to take out loans since they are receiving additional support, can be debt-averse, or may work off-campus to cover their education costs (Ryan, 2005; Titus, 2006). We found that students with loans as their primary payment method had statistically significant relationships with academic capitals that centered around familial ties, navigating the institution, and being able to overcome barriers. Specifically, *navigation of systems* (students' abilities to access and utilize support programs within their institution, *family uplift* (students' desire to achieve more, both in life more broadly and in education than previous family members), *overcoming barriers* (the ability to overcome obstacles that can hinder their success/persistence at their institutions of higher education), *familial expectations* (the expectation that the student will or will not pursue a formal post-secondary education), and *supportive networks* (access to supportive people and networks outside their institutions of higher education). These academic capitals illustrate the importance of how students form relationships and have support while enrolled at their higher education institution. Also, it supports that students may feel pressure to

complete their degree if the family expectations are for the child to complete their degree by any means (Phinney et al., 2006; Sy & Brittian, 2008).

Furthermore, the intrinsic motivation to complete the degree can be an internal motivator resulting in students taking out loans to accomplish their goals (Shilingford & Karlin, 2013). There were significant relationships in attitudes toward mandatory fees and university knowledge, but there were no statistically significant relationships between knowledge of mandatory fees. Specifically, more favorable attitudes towards fees were a more significant predictor of students utilizing loans to pay for their education. The findings can be associated with students having more favorable attitudes towards fees. It may be that these students engage more in the institutional environment and see value in the services and programs provided by fee revenue. These services and programs are seen as favorable in the campus environment. However, the findings suggest that *overcoming barriers* had the highest relative risk ratio than any other variable that predicted students taking out loans at the highest amount. The results from this model illustrate that as students engage with their institution, they become more invested in completing their degree; however, the only payment method they are finding to cover their education costs is loans—conversely, there is a statistically significant relationship with the highest amount of scholarships associated with *college knowledge*. Therefore, students are matriculating through the institution but are not acquiring more information or knowledge about their higher education institution. There is a need to develop policies that target students to help them learn about resources as they matriculate through the institution and not just advance their status with little engagement. The previous findings highlight how knowledgeable students may reduce their student debt by understanding where resources are located within their institution, which contrasts with the students who may not know about resources on campus and rely on loans to help with their degree completion. Furthermore, this can also result in students with higher academic capital being more likely to engage with faculty and develop peer relationships through the collegiate experience. These relationships can form resource connections that help students find services and programs that mitigate some of the financial burdens of attending a post-secondary higher education institution.

Overall, positive attitudes towards mandatory fees and university knowledge are essential for securing scholarships and grants. Also, as student debt is a growing concern for students, the outcomes illustrate how students with *concerns about costs* and *college knowledge* are more likely to receive grants. Across all three payment types, Pell status was a significant predictor, indicating that those students who receive Pell grants are likely to receive higher levels of grants and scholarships. Academic capital is not an indicator of the deficiency of a student but rather a tool to understand how students make sense of the organizational structures within the institutional context (Winkler & Sriram, 2015). Because students attend multiple years at their institution does not signify that they are more knowledgeable of the institutional structures or the cost of their attendance.

Do Racial Differences Amongst Students Predict Their Payment Methods?

The analysis of the findings suggest that payment methods differ amongst student racial groups. However, all groups acquired student loan debt in one of the student loan intervals. It is indicative of the ballooning costs associated with attending a four-year higher education institution. The rise of loans can be attributed to declining state support for higher education, uncapped borrowing, poor accountability standards, and increased access to federal student loans (Ruddy et al., 2021). As it relates to student loan amounts incurred, the analysis supported that race/ethnicity is the most significant predictor of loans than any other variable, and often white students incurred more student loan debt in certain intervals than any other student group. However, African American/Black students were likelier to take out the highest amount of loans than any other racial group. This is in line with a national report provided by the Postsecondary National Policy Institute (2022) that found in 2015-16 that 71% of Black students took out federal loans for their education, compared to 56% of white students. In conjunction with these numbers, African American/Black women have the highest, on average, student loan debt than any other gender and race/ethnicity at $30,400 compared to $22,000 for white women and $19,500 for white men (Becker, 2018). The amount of loans for

this specific group is higher than their peers, and it may be contributed to 72% of African American/Black students in 2015-16 receiving Pell Grants compared to only 34% of their white peers (Postsecondary National Policy Institute, 2022). African American/Black students are not the only student group that incurred student loan debt; however, they have one of the highest stop-out rates of any other student group (Kim & Conrad, 2006). The stop-out rates coupled with large loan amounts of debt can adversely impact these students. Because African American/Black students have the highest average amounts of debt and are more likely to stop out, practitioners and policymakers should develop strategies to target specific student groups with information on costs associated with their attendance.

Because student loan debt in our country exceeds one trillion dollars, there needs to be a focal point highlighting how this debt can be adverse for future earners. For example, student loan debt at the undergraduate level can dissuade students from pursuing graduate degrees (Kim & Eyermann, 2006; Malcolm & Dowd, 2012; Millett, 2003; Zhang, 2013), starting businesses (Baum, 2015), delay life events like marriage and family (Addo, 2014; Nau et al., 2015), decreases the student's ability to give back to their alma mater (Meer & Rosen, 2012), and can be detrimental to a student's mental health (Walsemann et al., 2015). Although Hillman (2015) argues that the previous studies do not have robust research designs, the investigations do have merit in how student debt shapes student behavior and life events. If we are not making a concerted effort to analyze the impacts of debt on students, we may lose out on an entire generation of wealth earners in the upcoming decades.

Moreover, there is a need to assist financially constrained students with paying their education. Therefore, there is a need to expand matching programs to help students/parents save for their child's education. Similar to Arizona's Earn to Learn program that matches contributions by the student 8:1 (Earn to Learn: Invest in College Success, 2022) that helps students save for their education and utilize the funds once enrolled in a higher education institution. Moreover, develop more efficient income-based repayment plans for loans that will allow students to have the ability to pay off their loans, help those that can benefit from income-based repayment plans enroll as former students with high debt-to-income ratios are less likely to enroll in the program (Collier et al., 2022). Embed financial literacy programs in high schools to provide resources and cost simulators for students to understand the long-term commitments of loans and student debt. Finally, develop multiple options for students to attend higher educations that will not require full-time enrollment or an affordable part-time option to help keep costs manageable for their students and parents (Burdman, 2005).

Study Limitations

Although we have found significant findings related to how academic capital, university knowledge, and positive attitudes shape students' payment methods. There are several limitations to the research investigation. The study was completed at a regional doctoral institution located in the southwest, which means the results are not generalizable to all four-year higher education institutions within the nation. The respondents self-reported the amounts of scholarships, grants, and loan amounts to the investigators. As a result, the research team acknowledges that students often misreport or fail to accurately identify the disaggregated aid amount they receive for their attendance. Also, the investigation site is a public higher education institution where tuition and fees are more transparent than their private institution counterparts and costs are public knowledge. Furthermore, the investigation site may not be as reliant on tuition and fees compared to a smaller public or private higher education institution (Martin & Samels, 2009; Porter & Ramirez, 2009; Segosebe-Lyken & Shepard, 2013). The findings from the study do not answer how students acquire knowledge related to the university or towards fees or how students build relationships within the institutional environment. Furthermore, investigations are needed to understand how students gain the knowledge and leverage their relationships to acquire new resources. Finally, because students have diverse

lived experiences, there needs to be more research surrounding how it shapes their knowledge and how students understand the organizational structures within their institution (Winkler & Sriram, 2015).

Implications for Future Research

The research investigation analyzes how students' knowledge and attitudes towards mandatory fees can shape their payment methods. However, there is a need to investigate how students' payment methods can be influenced by their feelings. Specifically, assessing the emotional toll of having a remaining balance after their enrollment. As a result, do they become less connected and more ambivalent towards the cost of their attendance? Are they choosing methods that pay the cost in the short-term without factoring in long-term consequences? This may be evident in response to the growing increase in student loans, but more specifically, African American/Black students in how they take out more student loan debt than any other student group. Additional studies are needed to understand payment methods at the two-year level and regional institutions that are more affordable for students. The analysis of these institutions can result in finding that students at these institutions, in comparison, have different payment methods and do not rely on loans as students that attend larger research-focused institutions; yet, these students may report lower academic capital and university knowledge coupled with negative attitudes of mandatory fees.

Furthermore, a follow-up study is needed to understand how intrinsic and extrinsic motivation shape students' desire to complete their degrees and the influence on their payment methods. For example, the desire to complete a goal can make students see their degree as a necessary cost and will accrue debt to complete it. In addition, research is needed to understand if payment methods are shaped by the number of hours a student works weekly.

Implications for Practice/Policy

Institutional administrators need to improve the academic capital and university knowledge of students. This can be accomplished by providing transparent opportunities to ensure students know the net cost of attendance and not relying on tuition and fee calculators that do not include the cost of living. Research has suggested developing information that caters to different student groups have led to improved student behaviors (Hoxby & Turner, 2015; Perna, 2006b), which can help deter African American/Black students from incurring excessive amounts of student loan debt. We must understand that a low value or lack of awareness in some academic scale categories does not mean a student is deficient; rather, it represents that they have subpar awareness related to institutional procedures and policies. The process of building awareness around policies and procedures can be utilized by their involvement in fee-supported services, faculty and peer relationships, or via introductory courses. The development of their social and cultural capital can assist students with understanding their actual cost of education and possible options for students to opt out of paying specific fees if available. We acknowledge that a significant amount of fees supports academic tutoring (one-third of students frequent tutoring services (Ehrenberg, 2012) and library services. Conversely, services such as these can be mediators to help build student knowledge, and these services can help to expedite a student's collegiate journey and decrease the time to graduation.

Nexus

- Practitioners should develop connection points on campus that act as information hubs to assist in establishing communication with students' concerning deadlines (e.g., deadline to complete financial aid) and resources that can help with student payment methods.
- Practitioners should be aware that a significant number of students take out loans, and African American/Black students take out more loans than any other demographic. The development of culturally specific programs to address the ramifications of excessive debt amounts, and the

implications of delayed outcomes on life milestones with these students is a necessity. Also, what loan forgiveness programs are available to them.

- Historically excluded students (e.g., low-income, first-generation, and minority) need embedded programs that help foster relationships with faculty and peer students that help connect students to institutional resources. Furthermore, practitioners should be cognizant of the implications of previous student experiences on their payment methods.

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Appendix A

Table 2

Fit Statistics

Model	X^2	Cragg-Uhler/Nagelkerke
Scholarship	105.74	0.26
Grants	347.15	0.66
Loans	165.02	0.39

Appendix B

Table 3

Multinomial Regression for Scholarships Payment Method

RANGE	schlps	RRR	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
	Referece	1.000	.	.	.	.	.	
	Black	0.230	0.210	-1.61	0.107	0.039	1.374	
	Hispanic	0.554	0.437	-0.75	0.455	0.118	2.604	
	Native	928000.000	939000000.000	0.01	0.989	0.000	.	
	White	0.568	0.375	-0.86	0.391	0.156	2.071	
	Multi	0.000	0.002	-0.03	0.979	0.000	.	
	Other	5.284	7.918	1.11	0.267	0.280	99.617	
500-1500	gender	1.191	0.593	0.35	0.725	0.449	3.159	
	Reference	1.000	.	.	.	.	.	
	Yes	1.737	0.871	1.10	0.270	0.651	4.639	
	fac_ac1	0.378	0.244	-1.51	0.132	0.107	1.338	
	fac_ac2	1.192	0.349	0.60	0.548	0.672	2.116	
	fac_ac3	1.182	0.391	0.51	0.613	0.619	2.259	
	fac_ac4	1.397	0.406	1.15	0.250	0.790	2.469	
	fac_ac5	0.952	0.274	-0.17	0.865	0.541	1.675	
	fac_ac6	1.270	0.326	0.93	0.353	0.767	2.102	
	fac_ac7	1.390	0.377	1.22	0.224	0.817	2.365	
	fac_ac8	0.800	0.227	-0.79	0.432	0.459	1.395	
	att_1	1.514	0.319	1.97	0.049	1.001	2.288	*
	tot_knw	1.045	0.088	0.52	0.603	0.885	1.233	
	unv_knw	0.941	0.058	-0.99	0.323	0.833	1.062	
	Constant	0.007	0.017	-2.05	0.040	0.000	0.804	**
	Reference	1.000	.	.	.	.	.	
	Black	0.671	0.535	-0.50	0.617	0.140	3.205	
	Hispanic	1.009	0.763	0.01	0.991	0.229	4.444	
	Native	955000.000	967000000.000	0.01	0.989	0.000	.	
	White	1.595	1.038	0.72	0.473	0.446	5.710	
	Multi	6.479	8.190	1.48	0.139	0.544	77.170	
	Other	1.765	2.844	0.35	0.724	0.075	41.542	
	gender	0.945	0.390	-0.14	0.891	0.421	2.120	
1501-3500	Reference	1.000	.	.	.	.	.	
	Pell	2.302	0.982	1.96	0.051	0.998	5.310	*
	fac_ac1	1.098	0.364	0.28	0.779	0.573	2.102	
	fac_ac2	0.995	0.227	-0.02	0.984	0.637	1.556	
	fac_ac3	1.344	0.359	1.11	0.268	0.796	2.267	
	fac_ac4	0.916	0.222	-0.36	0.719	0.570	1.474	

	fac_ac5	0.883	0.218	-0.50	0.614	0.544	1.432	
	fac_ac6	0.836	0.172	-0.87	0.385	0.558	1.253	
	fac_ac7	1.312	0.296	1.20	0.229	0.843	2.041	
	fac_ac8	0.774	0.179	-1.11	0.268	0.492	1.217	
	att_1	1.082	0.127	0.67	0.501	0.859	1.363	
	tot_knw	0.972	0.062	-0.44	0.659	0.859	1.101	
	unv_knw	0.976	0.042	-0.56	0.577	0.898	1.062	
	Constant	0.391	0.577	-0.64	0.524	0.022	7.028	
	Reference	1.000	.	.	.	.	.	
	Black	0.482	0.384	-0.92	0.360	0.101	2.299	
	Hispanic	1.489	1.035	0.57	0.567	0.381	5.814	
	Native	5890000.000	5960000000.000	0.01	0.988	0.000	.	
	White	0.621	0.375	-0.79	0.431	0.190	2.028	
3501-5500	Multi	2.603	3.288	0.76	0.449	0.219	30.949	
	Other	0.000	0.002	-0.02	0.986	0.000	.	
	gender	1.326	0.558	0.67	0.503	0.581	3.026	
	Reference	1.000	.	.	.	.	.	
	Yes	0.693	0.326	-0.78	0.435	0.276	1.742	
	fac_ac1	0.710	0.244	-1.00	0.317	0.362	1.390	
	fac_ac2	0.746	0.191	-1.14	0.253	0.452	1.232	
	fac_ac3	0.921	0.263	-0.29	0.772	0.526	1.612	
	fac_ac4	1.166	0.306	0.59	0.557	0.698	1.950	
	fac_ac5	1.212	0.326	0.71	0.475	0.715	2.052	
	fac_ac6	0.701	0.153	-1.62	0.104	0.456	1.076	
	fac_ac7	0.994	0.223	-0.03	0.980	0.641	1.542	
	fac_ac8	0.896	0.220	-0.45	0.654	0.554	1.450	
	att_1	1.106	0.141	0.79	0.430	0.862	1.419	
	tot_knw	1.047	0.068	0.72	0.473	0.923	1.188	
	unv_knw	0.966	0.043	-0.78	0.435	0.885	1.054	
	Constant	0.342	0.532	-0.69	0.490	0.016	7.203	
	Reference	1.000	.	.	.	.	.	
	Black	0.713	0.448	-0.54	0.590	0.208	2.442	
	Hispanic	1.155	0.697	0.24	0.811	0.354	3.772	
	Native	494000.000	500000000.000	0.01	0.990	0.000	.	
	White	0.627	0.327	-0.89	0.371	0.226	1.744	
Above 5500	Multi	2.642	3.142	0.82	0.414	0.257	27.187	
	Other	1.041	1.395	0.03	0.976	0.075	14.396	
	gender	0.755	0.266	-0.80	0.425	0.378	1.506	
	Reference	1.000	.	.	.	.	.	
	Yes	1.192	0.453	0.46	0.644	0.566	2.512	
	fac_ac1	0.871	0.265	-0.45	0.651	0.480	1.583	
	fac_ac2	0.645	0.134	-2.11	0.035	0.429	0.969	*
	fac_ac3	1.433	0.342	1.51	0.132	0.897	2.289	
	fac_ac4	0.891	0.190	-0.54	0.588	0.586	1.354	
	fac_ac5	1.396	0.316	1.47	0.141	0.896	2.177	
	fac_ac6	0.887	0.165	-0.64	0.520	0.616	1.278	
	fac_ac7	0.892	0.172	-0.59	0.555	0.612	1.302	

	fac_ac8	0.513	0.106	-3.23	0.001	0.342	0.770	***
	att_1	1.231	0.135	1.89	0.059	0.992	1.527	*
	tot_knw	0.992	0.056	-0.13	0.894	0.888	1.109	
	unv_knw	0.952	0.037	-1.28	0.202	0.882	1.027	
	Constant	0.782	1.028	-0.19	0.852	0.059	10.293	
	1b.race	1.000	.	.	.	.	.	
	2o.race	1.000	.	.	.	.	.	
	4o.race	1.000	.	.	.	.	.	
Base level	5o.race	1.000	.	.	.	.	.	
	7o.race	1.000	.	.	.	.	.	
	8o.race	1.000	.	.	.	.	.	
	9o.race	1.000	.	.	.	.	.	
	o.gender	1.000	.	.	.	.	.	
	0b.pell	1.000	.	.	.	.	.	
	1o.pell	1.000	.	.	.	.	.	
	o.fac_ac1	1.000	.	.	.	.	.	
	o.fac_ac2	1.000	.	.	.	.	.	
	o.fac_ac3	1.000	.	.	.	.	.	
	o.fac_ac4	1.000	.	.	.	.	.	
	o.fac_ac5	1.000	.	.	.	.	.	
	o.fac_ac6	1.000	.	.	.	.	.	
	o.fac_ac7	1.000	.	.	.	.	.	
	o.fac_ac8	1.000	.	.	.	.	.	
	o.att_1	1.000	.	.	.	.	.	
	o.tot_knw	1.000	.	.	.	.	.	
	o.unv_knw	1.000	.	.	.	.	.	
	o.Constant	1.000	.	.	.	.	.	

Mean dependent var	3.333	SD dependent var	1.240
Pseudo r-squared	0.095	Number of obs	369.000
Chi-square	105.737	Prob > chi2	0.014
Akaike crit. (AIC)	1162.564	Bayesian crit. (BIC)	1475.427

Note. *** p<0.01, ** p<0.05, * p<0.1

Appendix C

Table 4

Multinomial Regression Results for Grants

RANGE	grants	RRR	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
	Reference	1.000	.	.	.	.	.	
	Black	3.815	5.143	0.99	0.321	0.272	53.577	
	Hispanic	3.932	4.940	1.09	0.276	0.335	46.132	
500-700	Native	0.000	0.000	0.00	1.000	0.000	.	
	White	4.378	5.109	1.26	0.206	0.444	43.120	
	Multi	0.000	0.002	-0.00	0.997	0.000	.	
	Other	0.000	0.002	-0.00	0.997	0.000	.	
	gender	0.904	0.531	-0.17	0.864	0.286	2.861	
	Reference	1.000	.	.	.	.	.	
	pell	48.401	39.449	4.76	0.000	9.797	239.124	***
	fac_ac1	1.117	0.864	0.14	0.886	0.245	5.086	
	fac_ac2	0.917	0.322	-0.25	0.806	0.461	1.824	
	fac_ac3	1.331	0.503	0.76	0.449	0.635	2.792	
	fac_ac4	0.807	0.297	-0.58	0.560	0.393	1.660	
	fac_ac5	1.270	0.480	0.63	0.527	0.606	2.664	
	fac_ac6	2.325	0.775	2.53	0.011	1.210	4.468	**
	fac_ac7	0.887	0.306	-0.35	0.728	0.452	1.743	
	fac_ac8	1.062	0.361	0.18	0.859	0.546	2.066	
	att_1	0.889	0.224	-0.47	0.640	0.543	1.456	
	tot_knw	0.917	0.101	-0.79	0.430	0.740	1.137	
	unv_knw	1.036	0.081	0.46	0.647	0.890	1.207	
	Constant	0.045	0.128	-1.10	0.273	0.000	11.420	
	1b.race	1.000	.	.	.	.	.	
	Black	0.000	0.001	-0.01	0.994	0.000	.	
	Hispanic	2.846	4.031	0.74	0.460	0.177	45.698	
	Native	1.057	2.418	0.02	0.981	0.012	93.672	
	White	3.010	3.630	0.91	0.361	0.283	31.999	
	More	0.000	0.000	-0.01	0.995	0.000	.	
	Other	0.000	0.002	-0.00	0.997	0.000	.	
701-900	gender	1.924	1.576	0.80	0.424	0.386	9.579	
	0b.pell	1.000	.	.	.	.	.	
	pell	13.892	16.268	2.25	0.025	1.399	137.903	*
	fac_ac1	1.981	1.579	0.86	0.391	0.415	9.450	
	fac_ac2	0.759	0.398	-0.53	0.599	0.271	2.123	
	fac_ac3	0.823	0.453	-0.35	0.724	0.280	2.423	
	fac_ac4	0.434	0.199	-1.82	0.068	0.177	1.064	*
	fac_ac5	2.317	1.377	1.41	0.157	0.723	7.424	
	fac_ac6	2.056	1.058	1.40	0.162	0.749	5.639	
	fac_ac7	1.196	0.598	0.36	0.721	0.449	3.186	
	fac_ac8	0.941	0.467	-0.12	0.903	0.356	2.489	

	att_1	0.581	0.174	-1.81	0.071	0.323	1.046	*
	tot_knw	1.126	0.198	0.68	0.500	0.798	1.589	
	unv_knw	1.234	0.131	1.98	0.047	1.002	1.520	*
	Constant	0.043	0.172	-0.78	0.434	0.000	114.787	
	Reference	1.000	.	.	.	.	.	
	Black	10000000.000	20900000000.000	0.01	0.994	0.000	.	
	Hispanic	12900000.000	26900000000.000	0.01	0.994	0.000	.	
	Native	0.000	2.870	0.00	1.000	0.000	.	
901-1000	White	12100000.000	25200000000.000	0.01	0.994	0.000	.	
	Multi	52300000.000	109000000000.000	0.01	0.993	0.000	.	
	Other	1.464	8327.961	0.00	1.000	0.000	.	
	gender	0.848	0.605	-0.23	0.817	0.209	3.430	
	Reference	1.000	.	.	.	.	.	
	Pell	116.574	108.931	5.09	0.000	18.673	727.766	***
	fac_ac1	0.839	0.579	-0.25	0.799	0.217	3.247	
	fac_ac2	1.510	0.624	1.00	0.318	0.672	3.392	
	fac_ac3	1.244	0.571	0.47	0.635	0.505	3.061	
	fac_ac4	0.917	0.433	-0.18	0.854	0.363	2.312	
	fac_ac5	1.263	0.538	0.55	0.584	0.547	2.913	
	fac_ac6	1.126	0.406	0.33	0.743	0.555	2.282	
	fac_ac7	0.724	0.275	-0.85	0.395	0.344	1.524	
	fac_ac8	1.712	0.715	1.29	0.198	0.755	3.881	
	att_1	0.772	0.180	-1.11	0.265	0.489	1.218	
	tot_knw	0.957	0.110	-0.38	0.704	0.765	1.198	
	unv_knw	1.048	0.087	0.57	0.567	0.892	1.233	
	Constant	0.000	0.000	-0.01	0.993	0.000	.	
	Reference	1.000	.	.	.	.	.	
	Black	2.650	2.531	1.02	0.308	0.407	17.234	
	Hispanic	1.561	1.365	0.51	0.611	0.281	8.669	
	Native	0.340	0.538	-0.68	0.496	0.015	7.589	
	White	3.024	2.244	1.49	0.136	0.706	12.952	
	Muti	4.966	5.661	1.41	0.160	0.532	46.374	
	Other	2.896	4.164	0.74	0.460	0.173	48.478	
	gender	1.469	0.668	0.85	0.397	0.603	3.580	
	Reference	1.000	.	.	.	.	.	
	Pell	151.823	107.163	7.12	0.000	38.065	605.548	***
	fac_ac1	1.070	0.383	0.19	0.850	0.531	2.159	
1,000 – 2000	fac_ac2	1.367	0.361	1.19	0.236	0.815	2.293	
	fac_ac3	1.029	0.315	0.10	0.925	0.565	1.874	
	fac_ac4	0.588	0.157	-1.99	0.047	0.348	0.992	*
	fac_ac5	1.108	0.303	0.38	0.708	0.649	1.893	

	fac_ac6	1.353	0.310	1.32	0.187	0.864	2.121	
	fac_ac7	0.907	0.229	-0.39	0.699	0.552	1.489	
	fac_ac8	1.562	0.396	1.76	0.078	0.951	2.566	*
	att_1	0.802	0.105	-1.69	0.091	0.621	1.036	*
	tot_knw	0.996	0.068	-0.06	0.950	0.871	1.138	
	unv_knw	1.045	0.050	0.92	0.357	0.952	1.147	
	Constant	0.131	0.219	-1.22	0.224	0.005	3.454	
	Reference	1.000	.	.	.	.	.	
	Black	1.615	1.605	0.48	0.630	0.230	11.329	
	Hispanic	1.842	1.644	0.68	0.494	0.320	10.598	
	Native	0.077	0.135	-1.46	0.144	0.002	2.398	
	White	2.095	1.675	0.93	0.355	0.437	10.038	
	Multi	2.265	2.883	0.64	0.521	0.187	27.440	
2,000+	Other	7.240	10.325	1.39	0.165	0.442	118.475	
	gender	1.073	0.515	0.15	0.884	0.419	2.748	
	Reference	1.000	.	.	.	.	.	
	Pell	594.598	441.153	8.61	0.000	138.895	2545.424	***
	fac_ac1	1.384	0.559	0.81	0.421	0.627	3.057	
	fac_ac2	1.058	0.284	0.21	0.835	0.625	1.790	
	fac_ac3	1.080	0.339	0.24	0.806	0.583	2.000	
	fac_ac4	0.860	0.254	-0.51	0.609	0.482	1.533	
	fac_ac5	1.045	0.303	0.15	0.880	0.591	1.846	
	fac_ac6	1.129	0.274	0.50	0.618	0.701	1.816	
	fac_ac7	0.718	0.187	-1.27	0.204	0.430	1.198	
	fac_ac8	0.975	0.256	-0.10	0.923	0.583	1.632	
	att_1	0.863	0.124	-1.02	0.306	0.650	1.145	
	tot_knw	0.974	0.072	-0.36	0.718	0.843	1.125	
	unv_knw	1.019	0.052	0.37	0.709	0.922	1.127	
	Constant	0.104	0.184	-1.27	0.202	0.003	3.381	
	1b.race	1.000	.	.	.	.	.	
Base level	2o.race	1.000	.	.	.	.	.	
	4o.race	1.000	.	.	.	.	.	
	5o.race	1.000	.	.	.	.	.	
	7o.race	1.000	.	.	.	.	.	
	8o.race	1.000	.	.	.	.	.	
	9o.race	1.000	.	.	.	.	.	
	o.gender	1.000	.	.	.	.	.	
	0b.pell	1.000	.	.	.	.	.	
	1o.pell	1.000	.	.	.	.	.	
	o.fac_ac1	1.000	.	.	.	.	.	
	o.fac_ac2	1.000	.	.	.	.	.	
	o.fac_ac3	1.000	.	.	.	.	.	
	o.fac_ac4	1.000	.	.	.	.	.	
	o.fac_ac5	1.000	.	.	.	.	.	
	o.fac_ac6	1.000	.	.	.	.	.	
	o.fac_ac7	1.000	.	.	.	.	.	
	o.fac_ac8	1.000	.	.	.	.	.	

o.att_1	1.000	.	.	.	.	.
o.tot_knw	1.000	.	.	.	.	.
o.unv_knw	1.000	.	.	.	.	.
o.Constant	1.000	.	.	.	.	.

Mean dependent var	5.003	SD dependent var	1.370
Pseudo r-squared	0.354	Number of obs	369.000
Chi-square	347.151	Prob > chi2	0.000
Akaike crit. (AIC)	833.221	Bayesian crit. (BIC)	1224.300

Note. *** p<0.01, ** p<0.05, * p<0.1

Appendix D

Table 5

Multinomial Regression Results for Loans

RANGE	loans	RRR	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
	Reference	1.000	.	.	.	.	.	
	Black	6.754	6.211	2.08	0.038	1.114	40.955	*
	Hispanic	3.956	3.457	1.57	0.116	0.714	21.934	
500-1500	Native	2.127	3.295	0.49	0.626	0.102	44.296	
	White	2.941	2.479	1.28	0.201	0.564	15.345	
	Multi	0.000	0.001	-0.01	0.992	0.000	.	
	Other	0.000	0.003	-0.01	0.996	0.000	.	
	gender	2.049	1.071	1.37	0.170	0.736	5.708	
	Reference	1.000	.	.	.	.	.	
	Pell	4.699	2.394	3.04	0.002	1.731	12.754	***
	fac_ac1	1.309	0.702	0.50	0.616	0.457	3.745	
	fac_ac2	0.930	0.257	-0.26	0.793	0.541	1.599	
	fac_ac3	0.706	0.219	-1.12	0.262	0.385	1.297	
	fac_ac4	0.842	0.231	-0.63	0.531	0.493	1.441	
	fac_ac5	1.056	0.310	0.18	0.854	0.593	1.879	
	fac_ac6	1.897	0.504	2.41	0.016	1.127	3.192	**
	fac_ac7	0.897	0.221	-0.44	0.657	0.554	1.452	
	fac_ac8	1.012	0.281	0.04	0.965	0.588	1.743	
	att_1	0.888	0.153	-0.69	0.491	0.634	1.245	
	tot_knw	1.031	0.083	0.38	0.703	0.880	1.208	
	unv_knw	1.019	0.059	0.32	0.749	0.910	1.140	
	Constant	0.017	0.036	-1.95	0.051	0.000	1.022	*
	Reference	1.000	.	.	.	.	.	
	Black	11.610	13.732	2.07	0.038	1.143	117.929	*
	Hispanic	11.589	12.884	2.20	0.028	1.311	102.421	*
	Native	13.297	22.381	1.54	0.124	0.491	360.139	
1501-3500	White	15.708	16.905	2.56	0.010	1.906	129.474	**
	Multi	19.875	24.753	2.40	0.016	1.731	228.253	**
	Other	21.663	34.688	1.92	0.055	0.939	499.721	*
	gender	1.594	0.679	1.09	0.273	0.692	3.673	
	Reference	1.000	.	.	.	.	.	
	Pell	1.897	0.746	1.63	0.104	0.878	4.100	
	fac_ac1	3.021	1.164	2.87	0.004	1.420	6.428	**
	fac_ac2	0.473	0.115	-3.07	0.002	0.293	0.763	**
	fac_ac3	0.847	0.213	-0.66	0.509	0.517	1.387	
	fac_ac4	1.271	0.308	0.99	0.323	0.790	2.046	
	fac_ac5	0.831	0.198	-0.78	0.437	0.521	1.326	
	fac_ac6	2.366	0.512	3.98	0.000	1.548	3.615	***
	fac_ac7	0.642	0.136	-2.10	0.036	0.425	0.971	*
	fac_ac8	1.179	0.263	0.74	0.462	0.761	1.826	
	att_1	0.713	0.093	-2.60	0.009	0.552	0.920	**

	tot_knw	1.134	0.083	1.72	0.086	0.983	1.309	*
	unv_knw	1.136	0.055	2.65	0.008	1.034	1.248	**
	Constant	0.030	0.059	-1.78	0.075	0.001	1.429	*
	Reference	1.000	.	.	.	.	.	
	Black	1.355	1.354	0.30	0.761	0.191	9.606	
	Hispanic	2.073	1.528	0.99	0.323	0.489	8.791	
	Native	0.000	0.001	-0.01	0.996	0.000	.	
	White	2.398	1.635	1.28	0.199	0.631	9.122	
	Multi	2.004	2.524	0.55	0.581	0.170	23.661	
	Other	0.000	0.001	-0.01	0.996	0.000	.	
3501-5500	gender	0.601	0.276	-1.11	0.268	0.244	1.479	
	Reference	1.000	.	.	.	.	.	
	Pell	1.643	0.792	1.03	0.303	0.638	4.227	
	fac_ac1	2.929	1.306	2.41	0.016	1.223	7.019	**
	fac_ac2	0.638	0.176	-1.63	0.103	0.371	1.095	
	fac_ac3	0.550	0.166	-1.98	0.047	0.305	0.993	*
	fac_ac4	1.482	0.433	1.35	0.177	0.837	2.626	
	fac_ac5	0.745	0.201	-1.09	0.276	0.438	1.265	
	fac_ac6	2.609	0.690	3.62	0.000	1.553	4.382	***
	fac_ac7	0.539	0.135	-2.46	0.014	0.330	0.882	**
	fac_ac8	1.319	0.336	1.09	0.277	0.801	2.174	
	att_1	0.777	0.118	-1.66	0.097	0.577	1.047	*
	tot_knw	0.945	0.070	-0.76	0.446	0.818	1.093	
	unv_knw	1.032	0.052	0.63	0.532	0.935	1.139	
	Constant	2.075	3.386	0.45	0.655	0.085	50.825	
	Reference	1.000	.	.	.	.	.	
	Black	21.516	18.857	3.50	0.000	3.861	119.887	***
	Hispanic	3.567	3.175	1.43	0.153	0.623	20.419	
	Native	9.056	13.948	1.43	0.153	0.443	185.328	
	White	6.525	5.202	2.35	0.019	1.367	31.135	**
	Multi	7.134	7.976	1.76	0.079	0.797	63.824	*
	Other	0.000	0.001	-0.01	0.994	0.000	.	
	gender	0.494	0.189	-1.84	0.066	0.233	1.047	*
	Reference	1.000	.	.	.	.	.	
	Pell	0.682	0.303	-0.86	0.389	0.285	1.631	
Above 5501	fac_ac1	2.192	0.870	1.98	0.048	1.007	4.772	*
	fac_ac2	0.873	0.203	-0.58	0.561	0.554	1.378	
	fac_ac3	0.706	0.178	-1.38	0.168	0.430	1.158	
	fac_ac4	0.794	0.181	-1.01	0.313	0.508	1.242	
	fac_ac5	0.817	0.191	-0.86	0.389	0.517	1.293	
	fac_ac6	1.784	0.359	2.88	0.004	1.203	2.647	**
	fac_ac7	0.774	0.169	-1.18	0.239	0.505	1.186	
	fac_ac8	1.339	0.281	1.39	0.165	0.887	2.020	

	att_1	0.733	0.098	-2.31	0.021	0.563	0.953 *
	tot_knw	0.978	0.059	-0.37	0.710	0.869	1.100
	unv_knw	1.050	0.047	1.09	0.277	0.962	1.146
	Constant	3.220	4.796	0.79	0.433	0.174	59.681
	Base category						
	1b.race	1.000	.	.	.	.	.
I do not receive loans	2o.race	1.000	.	.	.	.	.
	4o.race	1.000	.	.	.	.	.
	5o.race	1.000	.	.	.	.	.
	7o.race	1.000	.	.	.	.	.
	8o.race	1.000	.	.	.	.	.
	9o.race	1.000	.	.	.	.	.
	o.gender	1.000	.	.	.	.	.
	0b.pell	1.000	.	.	.	.	.
	1o.pell	1.000	.	.	.	.	.
	o.fac_ac1	1.000	.	.	.	.	.
	o.fac_ac2	1.000	.	.	.	.	.
	o.fac_ac3	1.000	.	.	.	.	.
	o.fac_ac4	1.000	.	.	.	.	.
	o.fac_ac5	1.000	.	.	.	.	.
	o.fac_ac6	1.000	.	.	.	.	.
	o.fac_ac7	1.000	.	.	.	.	.
	o.fac_ac8	1.000	.	.	.	.	.
	o.att_1	1.000	.	.	.	.	.
	o.tot_knw	1.000	.	.	.	.	.
	o.unv_knw	1.000	.	.	.	.	.
	o.Constant	1.000	.	.	.	.	.

Mean dependent var	3.970	SD dependent var	1.394
Pseudo r-squared	0.177	Number of obs	369.000
Chi-square	165.022	Prob > chi2	0.000
Akaike crit. (AIC)	927.558	Bayesian crit. (BIC)	1240.422

Note. *** p<0.01, ** p<0.05, * p<0.1

Appendix E

Table 6

How Do Students' Knowledge and Attitudes Towards Mandatory Fees, University Knowledge, And Academic Capital Predict Their Payment Methods?

Variable	Definition	Operationalized
University knowledge (independent)	Knowledge of university financial structures	Likert scale responses to questions pertaining to familiarity to research/patents, tuition, state support, partnerships, and Public-Private Partnerships (P3)
Attitudes and knowledge of mandatory fees (independent	Knowledge (actual and perceived knowledge of mandatory fees	Correct T/F definitions of mandatory fees and students perceived knowledge of fee
	Attitudes (attitudes towards services and programs supported by fee related services)	Students' attitudes of services and programs of fee supported services
Academic capital (independent)	Measurement instrument designed to find which social, cultural, and human capital contribute to student's success in the collegiate environment	Eight subscales that provide a holistic view of the student's prior experiences (St. John, Hu, & Fisher, 2011) and modified by Winkler & Sriram (2015)
Payment methods (dependent)	The various forms and increments students received for support of their education	Students self-reported how much they receive in grants, scholarships, and loans

Table 7

Do Racial Differences in Students' Knowledge and Attitudes Of Mandatory Fees, and Academic Capital Predict Their Payment Methods?

Variable	Definition	Operationalized
Attitudes and knowledge of mandatory fees (independent	Knowledge (actual and perceived knowledge of mandatory fees	Correct T/F definitions of mandatory fees and students perceived knowledge of fee
	Attitudes (attitudes towards services and programs supported by fee related services)	Students attitudes of services and programs of fee supported services
Academic capital (independent)	Measurement instrument designed to find which social, cultural, and human capital contribute to student's success in the collegiate environment	Eight subscales that provide a holistic view of the student's prior experiences (St. John, Hu, & Fisher, 2011) and modified by Winkler & Sriram (2015)
Race/ethnicity (independent	The classification of students racial and ethnic identity	Student self-reported their racial and ethnic identity on the SKAFE instrument
Payment methods (dependent)	The various forms and increments students received for support of their education	Students self-reported how much they receive in grants, scholarships, and loans