

TEXAS TUITION DEREGULATION, AT WHAT COST?
IMPACT OF GENERAL ACADEMIC INSTITUTION
COSTS ON COMMUNITY COLLEGE ENROLLMENT

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by

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DEDICATION

To those who aspire to obtain a higher education degree but cannot or do not either because of real or perceived barriers of access and affordability. And, to all those I love and have lost, who have impacted my own journey.

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My grandfather, Robert H. Kolkhorst, held a fundamental belief that all people are equal, deserving of respect and opportunity. He embodied this core principle that I now strongly hold to, and I was blessed to have known him for a brief period of my life.

This sense of fairness he bestowed on me was stirred during a presentation on the changing demographics of Texas by the prescient Steve Murdock to the Texas State Legislature. Moreover, the consequences if leaders failed to acknowledge these shifts. It is my greatest hope that Texas is not creating barriers to entry in higher education as they claim to recruit our diverse community. Instead, that the state's pledge is supported by policies that allow for access and affordability by providing adequate funding to state institutions that are accountable and financial support to students in need.

My wish is that my future children have the same opportunities of access and affordability that I did, enabling them to go far beyond me. This is just one of numerous gifts from my parents to whom I am forever indebted. Without their unconditional love, encouragement and sacrifice, I would not be the individual I am today.

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CHAPTER I

INTRODUCTION

The promise of a healthy democracy is dependent upon the strength of its education system. Thomas Jefferson believed that knowledge empowered a nation's inhabitants to be informed and to question authority through education. Education allows for both the preservation of a true democratic system that adheres to freedom and also helps a country prosper. In order to maintain the success of this greatest democratic experiment the onus is on those who are elected to represent the voices of America to ensure a strong educational system. The United States Constitution is silent on education; however, under the Tenth Amendment states have the power to oversee their education systems. In order for the nation to remain competitive, state leaders must not reduce funds for higher education, including cutting costs to financial aid programs. It is equally necessary for leaders to recognize the needs of an increasingly diverse student population so that participation in higher education will rise and reflect the diversity. In this financial environment, it is incumbent for state lawmakers to develop policies that preserve access and affordability and that enable every student to be successful.

Over the course of America's history, higher education has been rightfully characterized as unequal. Originally it served only the few and the privileged or White, affluent males. Harvard was the first higher education institution in the nation, established in 1636; however, it was not until the late 1830s that institutions began to

admit female and African American students (Ohio History Central, 2009; The Harvard Guide, 2007). Over a century and a half later, female students across the nation are outpacing males in higher education enrollment numbers (National Center for Education Statistics [NCES], 2008b). In fact, from 1970 to 2006, women enrolled at a rate three times that of their male peers, and it is projected that by 2017 women will continue to represent 57% of students enrolled in higher education in the United States (NCES, 2008b, p.14). In the same time period, ethnic minority students comprised 17% of students enrolled in higher education and 26 years later in 2004 ethnic minority students encompassed 32% of total undergraduate enrollment (NCES, 2007, p.108). Additionally, between 1976 and 2004, enrollment increased at a greater rate for each ethnic minority group than for their White peers (NCES, 2007). Considering that the system once denied access to women and minority students, the progress is notable but imperfect.

Although ethnic minority groups continue to experience increases in higher education enrollment rates, it is educational attainment that underscores a national gap between the two largest ethnic populations, Whites and Hispanics (NCES, 2007). For example, in 2005 the percentage of White, Hispanic, and African American populations over the age of 25 with at least a bachelor's degree was 31, 18, and 12, respectively (NCES, 2007, p.123). Therefore, although minority enrollment in higher education is increasing, the percent of students that are actually earning a bachelor's degree varies across ethnic groups. Specifically, there is nearly a 20% gap between the two largest ethnic groups. If this gap is not addressed the competitive workforce that the United States has relied upon to prosper and to stay secure will be jeopardized as the percent of those educated decreases.

The rate of enrollment and educational attainment by ethnic minority groups in higher education is a critical issue due to their increasing populations. In 1980, Whites represented nearly 80% of the nation's population, while ethnic minorities comprised 20% (NCES, 2007, p.6). This ratio has since shifted in response to the quickly expanding Hispanic and Asian/Pacific Islander populations, where the Hispanic subpopulation represents the largest minority population (NCES, 2007). In 2005, White and ethnic minority groups composed 66.9% and 33.1% of the nation's population, respectively (NCES, 2007, p.6). Projections indicate that these ethnic groups will continue to increase. Therefore, it is imperative that local, state, and federal government leaders with the authority to construct and influence higher education policy recognize the changing characteristics and needs of these diverse groups. By acknowledging this changing demographic, lawmakers will address increased higher education participation rates, while enabling educational attainment and sustaining a competitive workforce.

Unfortunately, students are currently facing unprecedented higher education tuition and fees. Similarly, community colleges are experiencing a surge in enrollment for multiple reasons, such as demographic shifts, affordability, and the floundering economy. For many potential students, higher education costs are a barrier to their continuing education. As such, if cost is "the" factor that prohibits students from enrolling and/or completing, then attempts to closing the gap among ethnic groups is in danger. In 2003–2004 school year, 76.1% of undergraduates nationwide received financial aid in some form (NCES, 2007, p.114). During 2003-2004, 89.2% African American, 81.9% American Indian/Alaska Native, and 80.7% Hispanic undergraduates

received some form of financial support (NCES, 2007, p.114). Research supports that these ethnic minority undergraduates rely upon financial support for their education.

In order to sustain the fundamental belief in the importance of knowledge, states must adhere to the principles of equity, access, and affordability. Over time, the restrictions applied to some were changed, thus allowing for increased participation by females and minority groups. Obviously, higher education must acknowledge the diverse needs of the increasing ethnic minority population and in doing so must consider these principles of equity, access, and affordability such that financial issues do not limit enrollment options for these populations. To meet these goals the financing of higher education is central. State lawmakers must prioritize funding for higher education in a way that requires institutions to responsibly set tuition and fee rates and also allows the state to provide comprehensive financial aid programs. States must stop off-loading enormous costs to the students it claims to recruit into higher education, and actively assist in the financing of higher education. If not, the system will be demarcated by inequity, thus prohibiting certain income groups from affording higher education.

Decades of research have been conducted in order to determine the factors that influence a student's path to entering higher education. Determining what affects the decision making process is complex, and most cannot be controlled or impacted by legislative bodies. However, factors such as admission, tuition setting, and financial aid policy that do affect enrollment in higher education and are within the authority of those elected to represent the people, should be analyzed. This country requires a dynamic higher education system that is built on the concepts of access and affordability, and one that is responsive to its diverse constituency.

This study can be used to formulate policies that guarantee access and affordability to all who to pursue higher education in the United States. Moreover, this research seeks to compel leaders to acknowledge the need for and implementation of finance priorities in higher education in order to close the gaps in higher education participation and educational attainment among ethnicities. If tuition and fees continue to increase at higher education institutions, then it is likely that this escalation is pricing students out of higher education. As such, the gaps in enrollment and educational attainment will remain. The democratic system depends upon the states collectively providing educational institutions that are dynamic and recognize the diverse constituencies they serve. States must continually foster an educated workforce in order to sustain a viable economy. Without a strong economy, the United States jeopardizes losing its competitiveness in a globalized world

This study focused on examining higher education policy and finance in the state of Texas to determine what state lawmakers were doing to ensure access and affordability to its postsecondary student population. A commitment to access and affordability enables a more educated workforce that is increasingly diverse and subsequently preserves a powerful economy. In Texas, it is important to determine if leaders have contradicted their own goal of recruiting students into postsecondary education through policy decisions that actually shift higher education costs to the students and thereby obstructs that progress. Additionally, if this is the case, is the state willing to ensure access and affordability to all students by providing more financial support to those in need.

CHAPTER II

REVIEW OF LITERATURE

In recent years the responsibility of financing higher education institutions has incrementally shifted from the state to students. This shift threatens the ability of institutions to maintain their commitment to access and affordability for potential students. Cost is the most significant factor in whether they can afford to enroll in postsecondary institutions. Despite other factors, financial issues have been instrumental in focusing research efforts on addressing and adjusting state policy to prevent these barriers.

As one of the factors potentially impacting enrollment in higher education, cost must be thought of in terms of not only tuition but also as the availability of financial assistance. Tuition is accompanied by fees that vary across higher education institutions but constitute a substantial portion of overall costs. Furthermore, these fees do not include the cost of books and living expenses. Financial aid comes in the form of grant opportunities as well as loans provided by federal, state, and occasional institutional level programs. The ability to afford tuition most often stems from perceived available income and overall costs. Whether a student should take out a long term school loan is contingent upon ascertaining both initial and ongoing investment and its potential dividends. As such, a student must consider economic conditions and whether he/she is able to secure a job as opposed to seeking a degree. Tuition, fees, and other related

expenses may not match the benefits of a flourishing job market; subsequently, a student may then choose to enter the workforce instead of enrolling in an institution of higher education.

Higher education policy, specific to enrollment, is affected by political, social, and economic structures. However, some of these structures can be tackled through policy. Elected officials can influence access, affordability, and quality of education for all students, thus supporting the overall mission of higher education.

Research continues to debate what impacts enrollment. This study examined the relationship between enrollment and different factors including cost, financial aid, socioeconomic characteristics, and economic conditions. It included review of both academic and economic sources.

In order to address what impacts student demand for higher education, funding priorities by state legislatures must be considered because they are responsible for higher education policy. As such, this study addressed a review of national research on what determinants influence student enrollment in higher education.

Political Determinants of Enrollment in Institutions of Higher Education

Higher education policy is concentrated at the state government level and involves, but is not limited to, establishing governance structures, appropriating funding and developing policy, which commits to providing quality education, access, and affordability for students. With an ever-changing demographic that shows a growing minority population across the United States, affordability for students surfaces as a serious concern. Policy pertaining to affordability issues would enable a greater proportion of students, specifically, ethnic minorities to enter postsecondary institutions.

As a result, this produces a more educated workforce that can compete in a global economy. State lawmakers across the nation, but specifically in states with rapidly growing populations, have the opportunity and authority to develop policy for the future of higher education. Thus, ensuring state and national economic vitality.

Governance of Higher Education

A combination of institutional governing boards and the state legislature most often share the authority to set tuition and fee rates for their higher education institution systems (Lenth, 1993; Wellman, 1999). For example, the state legislature may have the authority to manipulate tuition and fee charges through statute, the budget process and/or the granting of rulemaking authority (Lenth). Legislatures are also at the helm of the appropriations process, so they are able to design the budget that delivers state money to institutions of higher education (Lenth). Simultaneously, state coordinating boards as well as institutional or multi-institutional governing boards may have the statutory authority to set the actual tuition rate each semester (Lenth). Governing board members are usually appointed by the governor; although, in the case of community colleges they are most often elected. In addition, governors also have the power to approve or reject the budget authored by their legislature. This gives them influence in the process as well. In most states, there is overlap between the branches, agencies, and entities that have authority over setting tuition rates and fees. This prevents granting power to one group. However, with power distributed among different actors, a lack of accountability can occur if there is public dissatisfaction with various issues, including tuition charges. Moreover, tuition deregulation policy generates much controversy due to public

perception, political climate, and the various agencies involved in the policy-making structure.

The issue of who should fund goods and services is a classic, political argument and raises the question of responsibility. Institutions may claim they are forced to raise revenue through the increase of tuition and fees because of inadequate state funding. On the other hand, states may refuse to increase state funding because institutions are egregiously raising revenue through tuition and fees on students, and not operating economically or responsibly (Wellman, 1999). This type of debate overshadows a more critical issue: how continued cost increases affect a student's likelihood to enroll in higher education.

Funding of Higher Education

When constructing policy state lawmakers find it increasingly difficult to strike a balance between their goals of educational quality and access (Seneca & Taussig, 1987). It is clear that as one improves the other is punished, which is due to the relationship each has on financing (Seneca & Taussig). In fact, a state legislature's higher education policy is clearly revealed in the way they fund higher education. Financing higher education depends largely on how tuition rates are set and the amount of state funding provided to institutions; one could argue that they are interdependent.

In an attempt to supplement state funding for higher education, the federal government at one time believed it was its responsibility to aid higher education through direct institutional subsidies. This belief was demonstrated in the passage of the Morrill Act of 1862, which provided land to states to establish institutions with a focus, although not exclusively, on agriculture and mechanics education (Heller, 1999; Leslie &

Brinkman, 1987; Rusk & Leslie, 1978; St. John & Starkey, 1995). Approximately one hundred years later there was a shift from direct to indirect subsidies in the form of need-based financial aid for students. This change was illustrated through the Higher Education Act of 1965 that created the Education Opportunity Grant Program, a precursor to the Pell Grant (Rusk & Leslie).

This same phenomenon of moving from direct to indirect funding of higher education has happened at the state level as well. States, which have historically shared the majority of the cost burden for higher education, began shifting away from direct funding for institutions; instead they began focusing on financial aid assistance for students in need (Hossler, Lund, Ramn, Westfall, & Irish, 1997; Paulsen, 1998; Rusk & Leslie, 1978; Seneca & Taussig, 1987; Wellman, 1999). The idea behind this trend was as state budgets were constrained and higher education became and largely a discretionary item, the increase in tuition revenue for the institutions would compensate for the decrease in state funds (Heller, 1999; Hossler et al.; Paulsen; Rusk & Leslie; Wellman). It was also thought that students should be paying more for the cost of higher education as it continued to rise (Rusk & Leslie). From 1971 to 1975 total state funding for higher education fell in thirty-six states and tuition and fees represented a larger portion of revenue in over 50% of the nation (Rusk & Leslie). The rationalization for the cost shift was that tuition could be increased in conjunction with a commitment to funding need-based aid for those who were financially strapped and affected by rising costs (Rusk & Leslie; Lenth, 1993; Wellman). This policy known as high-tuition, high-aid obliged high and middle income students to bear the brunt of the cost inherited from the state whereas lower income students were subsidized through aid (Rusk & Leslie).

With these policy developments, research showed a positive relationship between tuition and financial aid and a negative one between state funding and tuition charges as was theorized (Rusk & Leslie; Wellman).

By 1998, the United States General Accounting Office released a report that showed that for every state dollar that had been lost in tax revenue, \$0.75 cents of that had been recovered through tuition increases (Wellman, 1999, p.14). A study by Hossler et al. (1997, p.162) found that students and their families were required to pay about 142% in 1990 compared to the level of effort required in 1980. The funding for higher education has thus constructed the direction of policy. The intent of the cost-shift, with the addition of financial aid, was supposed to sustain a system that was born from the principle of maintaining access while offering a quality education. However, research has indicated this has not been the case.

Funding Financial Aid

Given that the elements of access and cost are interrelated, the willingness of states to finance higher education has molded policy that has ensued across the 50 states. It is clear that state funding to institutions is decreasing, therefore it is imperative that states provide comparable need-based financial aid as tuition rates rise; otherwise, access is hindered. Although the spoken intent of policymakers is respected, research has shown that their commitment to high-tuition, high-aid has not been upheld; thus, sustaining access and affordability has been jeopardized.

The theory behind financial aid is that it provides affordability despite changes in tuition (Lenth, 1993; Wellman, 1999). Therefore, if tuition costs continue to rise, the funding for student aid would theoretically have to match that increase in order to

maintain access (Lenth; Seneca & Taussig, 1987). Unfortunately, this has not been the case, and “top” universities are consequently providing “poor access for low-income and minority students” (Seneca & Taussig, 1987, p.26). Wellman (1999) indicated that as tuition increases, “the average net price of attending four-year institutions...increased the most for the lowest income families” (p.12). This illustrated the lack of equal appropriations for need-based financial aid to offset costs. However, the research showed that net prices did decrease at public two-year institutions and thus maintained affordability (Wellman).

States have asserted that they would implement these high tuition, high aid models, but, what appears to be more common is a high tuition, low aid model (Heller, 1999; Hossler et al., 1997; Paulsen, 1998; Paulsen & St. John, 2002). A study by Hossler et al. (1997) found that more than 77% of state financial aid directors reported “little relationship” (p.171) between state financial aid and state policy for setting tuition. Moreover, 59% reported that “their financial aid awards remained constant or declined” (Hossler et al., 1997, p.171). There is clear abandonment of the high aid portion by states. This leaves even fewer funds available per student, and simultaneously a growing number of students are dependent on this assistance as tuition increases (Hossler et al.; Paulsen; Paulsen & St. John). In Minnesota, tuition was raised for all students under the intentioned high-tuition, high-aid model (St. John & Starkey, 1995). However, total grants for high need students only increased to about half of the total tuition increase (St. John & Starkey).

The lack of effort by state legislatures to adequately fund financial aid has harmed entry for students. Seneca and Taussig (1987) conducted research on the relationship

between tuition policy and access. They found that tuition has a negative effect and financial aid has a positive effect on access. These results indicated that equitable need-based financial aid can offset tuition increases and uphold access. Adversely, a broken commitment to an equal proportion of financial aid will result in limited access. Although high tuition may indicate good educational quality, it signaled low access and consequently relegated all who cannot afford such institutions to low-cost options. As Hossler et al. (1997) pointed out, this claim of high-tuition, high-aid was, in actuality, an evolution towards the privatization of public higher education; only the strong or in this case, wealthy, could survive.

Socioeconomic Determinants of Enrollment in Institutions of Higher Education

Race and income stand out as independent variables that indirectly impact enrollment and therefore cannot be ignored when the goal of public policy is to maintain access and increase participation among all high school graduates. Across the United States, the percent of Whites, African Americans, and Hispanic high school graduates who then enrolled in college showed disparity at 73%, 56%, and 58%, respectively (Trombley, 2008, p 7). In addition to race, income appears to have a relationship with enrollment. Across the nation enrollment rates from the highest, middle, and lower income groups is at 91%, 78%, and 52%, respectively (Trombley, 2008, p.7). Race, an inherent trait, and income level cannot be directly altered by lawmaking. However, lawmakers and leaders must recognize the varied needs of diverse ethnic groups and the disparities among them. With that awareness they must commit to creating systems and programs that best support disadvantaged groups in order to provide equitable opportunities.

Race and Ethnicity

Impact of race and ethnicity on enrollment. During the 1970s, higher education saw an increase in the enrollment of ethnic minorities and low-income students; most notably these groups were entering two-year institutions in larger numbers (Thomas, 1979). Still, there has been continued concern that African American and Hispanic populations are not enrolling in higher education at a satisfactory rate (St. John & Noell, 1989). In fact, Rowan-Kenyon (2007) supported previous findings that African Americans make up a larger percentage of the students who delay enrollment in postsecondary education or who do not enroll at all.

Lower enrollment rates by ethnic minorities may be associated with what Heller (1997) believed was this population's tendency to be more sensitive to cost of enrollment than was the White population. This phenomenon may be due to the fact that cost is often the main hurdle when making a decision to enroll, and the low-income population has a larger minority population than any other income group (Paulsen & St. John, 2002). As one examines the income bracket, lower and lower-middle income students contain a higher percentage of minorities, whereas the upper-middle and upper-income groups are represented by a small percentage of minorities (Paulsen & St. John). Since lower and middle income populations are composed of larger percentages of minorities, it follows that these groups respond more drastically to tuition costs. Wetzel, O'Toole and Peterson (1998) found that African American students were "two-thirds more responsive" (p.47) than Whites to changes in net cost. This two-thirds increase resulted from a finding that showed with a \$1000 decrease in net cost, enrollment yields by White students increased by about 6% (Wetzel et al., 1998, p.52). With the same decrease in cost, African

American enrollment yields increased an additional 4-10.6% (Wetzel et al., 1998, p.52). Heller (1999, p.77) found that the enrollment by Hispanics dropped over 5% when tuition increases \$1000. This suggested that with either a decrease in tuition or focus on efforts to raise financial aid stipends, minority access would be expanded. On the other hand, without such an effort access would be heavily affected.

With the perceived cost relief that financial aid provides, it is not surprising that research shows that enrollment in all ethnic groups responds positively to state grant spending (Heller, 1999; St. John & Noell, 1989). Grants, more so than loans, have a positive impact on enrollment for both African Americans and Hispanic populations (St. John & Noell). Moreover, Hispanics respond most positively to grants and tend to be adverse to loans (Paulsen & St. John, 2002; St. John & Noell). Exploring explanations for why grants are favorable to that of loans, aside from the obvious repayment is not required, was not a part of this research.

Thomas (1979) discovered that African Americans and Whites had similar educational expectations when different factors were equalized. In fact, in a comparison of enrollment and controlling for both income level and performance on standardized testing of the two population groups, African American students had higher rates of enrollment in four-year institutions (Thomas) African Americans with low income status and who were high performing on standardized tests enrolled in two and four-year institutions at 34.5% and 65.5%, respectively (Thomas, 1979, p.214). In comparison, their White peers enrolled at 57.1% and 42.9%, respectively (Thomas, 1979, p.214). In the high income, high performance bracket the same trend can be seen with African Americans enrolling in two and four-year institutions at 21.7% and 78.3%, whereas

Whites enrolled at 38.3% and 61.7%, respectively (Thomas, 1979, p.214). Behrman, Kletzer, McPherson & Schapiro (1992) conducted similar research that showed when variables were controlled, including income and parental education level, the probability of enrollment for African American and Hispanic groups in four-year institutions would be equal to or more than that of the White population. A more recent study conducted by Light and Strayer (2002), drew the same conclusion. They found that once family income, test scores and other determinants of college attendance were controlled minority students are more likely to enroll than their White peers (Light & Strayer).

Impact of race and ethnicity on community college enrollment. Community colleges serve as a low-cost alternative to four-year institutions and are the entry point for many low income students (Heller, 1997). Ethnic minorities are overrepresented in community college institutions as well (Heller; Santibanez, Gonzalez, Morrison & Carroll, 2007). Since these population groups tend to be most sensitive to cost, the impact of tuition increases is even more prominent in community colleges where enrollment decreases for all groups (Heller, 1999). Enrollment for Asian American, African American, and Hispanic populations also increases at two-year institutions when four-year institutions experience tuition increases. This signals a substitution effect that states as tuition at four-year institutions increases, students will choose to enroll in two-year institutions because of the lower cost option (Heller, 1997, 1999). Because the White population composes a larger percent of the middle to higher income brackets, White students are less sensitive to cost because of parental financial support. Behrman et al. (1992) found when examining choice in postsecondary enrollment students in the White population of “highly educated and affluent parents” (p.18) that they were less

likely to enroll in two-year institutions and much more likely to enroll in four-year institutions.

These findings suggest that race is not a precise factor in enrollment for postsecondary education. Furthermore, when income and academic achievement or parental education level are controlled, ethnic minority students actually enter four-year schools more often than two-year schools in contrast to their White counterparts. Despite limitations, when these factors are equalized all students participate in higher education at similar rates.

Level of Income

Impact of income on enrollment. The Measuring Up 2008 report, findings indicated that the net college costs as a percentage of median family income have dramatically increased since 1990s. In fact, the lowest income group is now paying 55% of their income to attend public colleges and universities, up from 39% in the last decade (Trombley, 2008, p.8). The increases in costs are not absolving the middle class from financial straits, as the middle income group has seen an increase in the percentage of their total family income needed to attend these institutions from 18% to 25% (Trombley, 2008, p.25). This large proportion of a family's income having to be used for enrollment purposes only exacerbates barriers to entry.

As income increases, research has shown that there is less of an affect on enrollment in higher education. This follows from the aforementioned studies where researchers controlled for income while reviewing race as a factor in enrollment. Moreover, this leads to the conclusion that when income is standardized ethnic minorities enroll at the same or higher rate as Whites. Regrettably, family income in the United

States has slowly stagnated, and as tuition has risen considerably, the load on low and middle income families has become evermore burdensome (Trombley, 2008).

In a review of over 20 student demand studies, Heller (1997) consistently found that lower-income students were more sensitive to tuition changes and aid than those in higher income brackets. Paulsen and St. John (2002) found that lower income populations are less likely to attend college full time than their higher income peers. Additionally, the lower-middle income group consisted of a larger percentage of working students than any other income subpopulation. Nearly 60% of these students “considered tuition and/or financial aid as very important” in their college enrollment decisions (Paulsen & St. John, 2002, p.208). Presumably, members of this low to lower-middle income group are working in order to pay for school and possibly even caring for a family, which limits their ability to enroll as full-time students. Moreover, depending on program criteria these students may not be eligible for financial aid because of their part-time load, leaving them increasingly financially strapped.

Impact of income on community college enrollment Due to low-income students’ sensitivity to costs, it is not unexpected that research has shown that community colleges have long attracted a larger share of this population because of their lower cost (Heller, 1997; Jackson & Weathersby, 1975; Leslie & Brinkman, 1987; McPherson & Schapiro, 1994; Paulsen, 1998; Paulsen & St. John, 2002; Perna, Rowan-Kenyon, Bell, Thomas & Li, 2008; Rowan-Kenyon, 2007; Santibanez et al., 2007; Shin & Milton, 2006; St. John 1990; St. John & Starkey, 1994, 1995). In fact, nearly half of students in community colleges are low income students (McPherson & Schapiro; Paulsen). Paulsen and St. John conducted a study examining the relationship between social class and enrollment

decisions, and they found evidence to support this pattern. Their research showed 64% of low-income students chose an institution of higher education based on low-tuition, availability of student aid or both (Paulsen & St. John, 2002, p.207).

Historically the students served at community colleges have not been inhibited by costs because of these institutions commitment to low tuition. As tuition rates increase across the nation it is reasonable to assume that even more students will elect to attend community college. Unfortunately, this influx of students from students substituting from four-year to two-year schools because of cost, nontraditional enrollment increases and population growth will create further strain on already limited community college budgets. Growth in enrollment may subsequently force community colleges to compensate for experienced decreases in state funding by raising their own tuition. This leaves the majority of the population at community colleges who tend to be low and lower-middle income students with need for financial relief and/or support. If low cost entry is not maintained and financial aid is not sufficient, these students will face enrollment barriers at these once affordable institutions.

Cost of Education on Enrollment

In order to account for enrollment at institutions of higher education, many researchers have accepted the Human Capital theory posited by Becker whereby students base their enrollment decisions on weighing the costs of college and the benefits of an education (Betts & McFarland, 1995; Paulsen 1998; Shin & Milton, 2006; St. John & Starkey, 1995). Inherent in the theory is the economics of student demand, which posits that students have a response to the costs they will incur for a postsecondary education thus influencing their decision to enroll or not. The purpose of this research is to

determine if tuition has an impact on enrollment. In the context of Human Capital theory this would determine if students believe higher education is an investment that outweighs the debt they will amass until graduation and continue to payoff over a lifetime.

Tuition

Impact of tuition on enrollment. Research over the last thirty years has shown correlation between tuition and enrollment. Dating back to 1974, Hopkins found that tuition had a significant influence on enrollment. This study was followed by Jackson and Weathersby (1975, p.625) who reviewed seven student demand studies conducted through the late 1960s into the early 1970s and who found that under 1974 conditions, a \$100 change in tuition resulted in a 2.5% decline in enrollment in IHE. Over ten years later, Leslie and Brinkman (1987) reviewed over 25 student demand studies and came to a similar conclusion. They found that a \$100 increase in tuition is associated with a 1.8% decline in enrollment (Leslie & Brinkman, 1987, p.189). In 1990, St. John also found a statistically significant negative relationship; a proposed \$1000 increase in tuition would result in a 2.8% decrease in enrollment (Heller, 1997, p 628).

Shin and Milton (2006) hypothesized that tuition would not have an impact on enrollment, and they did find support for the theory. Rather as tuition increased, there was only a 1.13% decline in enrollment. This was not statistically significant; however, they believed their findings may have been due to the time period they choose as well as the definition of enrollment used. First, they looked at tuition between 1998 and 2002 when the price only increased 12.8% (Shin & Milton, 2006, p.231). Additionally, their research only included enrollment for first time, full-time college students. This is a limitation in that students who were enrolled for the first time and full time at four-year

institutions were likely from higher income brackets and thus not as sensitive to tuition costs. Research noted that lower and lower-middle income students were most often enrolled part-time, attended lower-cost institutions such as community colleges, and were more sensitive to costs; thus this representation did not capture the full picture of enrollment. By 2007, with tuition rising and little attention to aid, 90% of graduates found cost to have some importance in their decision to enroll in higher education (Rowan-Kenyon, 2007, p.211).

Impact of tuition on community college enrollment. After reviewing 20 student demand studies, Heller (1997, p.650) found that as price of college increased the probability of enrollment decreased. More important, cost had a greater effect on community colleges with a \$1000 increase in tuition causing a 4.7% decrease in enrollment. In 1999, Heller (p.75) conducted his own quantitative research and found that a \$1000 increase in community college tuition resulted in a 2.08% drop in enrollment. Research also revealed that part-time students were more cost sensitive, which consequently influenced their enrollment rates (Betts & McFarland, 1995). It was these part-time students who were entering community colleges in larger numbers; thus, it followed that the cost factor will be important when deciding to enroll.

Substitution effect on enrollment When tuition increases at institutions of higher education, a potential reaction by a student seeking to enroll is either to opt out of higher education or to enroll in a lower cost institution (Betts & McFarland, 1995; Hopkins, 1974; Shin & Milton, 2006). Hopkins' research recognized this type of substitution effect theory, which proposed that students were opting out of four-year institutions as tuition increased and instead enrolling in two-year colleges. In fact, subsequent research

indicated that a positive relationship between four-year college costs and two-year college enrollment existed (Betts & McFarland; Heller, 1997; Heller, 1999; Leslie & Brinkman, 1987). The potential of this type of relationship was pertinent given the increase in tuition that institutions across the nation were implementing. Moreover, how this affects community colleges and their ability to adequately serve an influx of students on limited resources should be of great concern to policymakers and institutional leaders.

Financial Aid

Impact of financial aid on enrollment. With costs of enrollment continuing to rise more students are facing access and affordability issues and are being forced to secure loans. The 2008 Measuring Up report by the National Center for Public Policy and Higher Education stated, “over the last decade, student borrowing has more than doubled” (Trombley, 2008, p.8). Although there has been rhetorical commitment by states to increase financial aid funding to accompany tuition increases, the former portion of the commitment has not occurred and this failure has curtailed enrollment. This is alarming. Heller (1997) reviewed twenty student demand studies conducted in the 1980s and 90s; his results concluded that decreases in financial aid have led to declines in enrollment. Research continues to indicate such consequences of breaking the financial aid commitment.

Costs of education can be perceived in many ways, either as a net cost or a set of different prices, which may include but are not limited to tuition, fees, grants, rent and/or living expenses. Dresch’s research followed this line of thought and proposed that students may respond to tuition and financial aid differently (Heller, 1997; Leslie & Brinkman, 1987; Paulsen, 1998; St. John & Starkey, 1995). His theory is supported by

research that indicates that students do indeed respond to “a set of prices and subsidies rather than a single net price” (St. John & Starkey, 1995, p.178). To illustrate the point, St. John (1990, p.169) found that for low-income students, a \$100 decrease in tuition increased the probability of enrollment by .34 and a \$100 increase in grants increased the probability by .88; hence, students in his study reacted more positively to grants than tuition decreases.

Under the umbrella of financial aid, it was also found that low-income students reacted most positively to grant changes rather than loans (Heller, 1997; Leslie & Brinkman, 1987; St. John, 1990). If grant funds decreased, the primary form of aid was loans; this form of aid required a student to take on a large amount of debt for years to come, which affected the perception of real costs. In *The Economic Value of Higher Education* Leslie and Brinkman also concluded that student aid in the form of grants did increase enrollment, and that 16% of students in postsecondary enrolled because of this subsidy (Heller, 1997, p.633) Although Shin and Milton (2006) found that high amounts of financial aid did not increase enrollment; they believed that such an outcome may have been due to the large shift from grant money to loans under the guise of financial aid. Moreover, their findings were contrary to most studies on the relationship between financial aid and enrollment

Impact of financial aid on community college enrollment Research also has shown that the impact of decreasing financial aid, specifically grants, on community college students can be graver than it is for their peers attending four-year institutions (Heller, 1997; Heller, 1999; Leslie & Brinkman, 1987). Due to the cost limitations that can be covered by federal grants for community college students, it is crucial that two-

year institutions raise their tuition with caution in order to prevent pricing out these higher need students (St. John & Starkey, 1994). This is not the type of institution that should shoulder a high-tuition, high-aid policy because these schools are intended to provide low costs and open access. If state legislatures are going to decrease funding and allow for flexible tuition, it is also their obligation to support and aid these high need students, who represent a large segment of the community college population.

The alarming cost shift from institutional funding to tuition and fees directly places the burden of financing on the student seeking an education. In fact, because of the large increases, the middle class is now in a position where it is not considered low-income enough to qualify for grants but not earning enough income to afford tuition. The affect that tuition presumes to have on student enrollment is vital because it is within the power of legislators and institutions of higher education to influence costs. Lawmakers cannot standardize or legislate one's social or economic background, but they can establish policy for setting tuition as well as ensuring comprehensive financial aid programs for students seeking postsecondary education

Local and National Economy on Enrollment

Unemployment Rate

When acknowledging the idea of student enrollment as both economic demand and human capital theory, one must examine the possible effects the economy has on enrollment. Researchers investigating the impact of tuition on enrollment have often included the unemployment rate as an independent variable representing the economic conditions (Betts & McFarland, 1995; Heller, 1999; Shin & Milton, 2006). As the unemployment rates increase and jobs are less available, prospective students decide to

go to school for the purpose of learning a new trade, returning for professional development or seeking a degree.

Impact of unemployment rate on community college enrollment. Due to community colleges' service to a more diverse population, a population that is likely to be more affected by a struggling economy, the unemployment rate should be identified as a potential factor impacting enrollment. Heller (1999) recognized this possibility and found that as the unemployment rate increased, overall enrollment for all ethnic groups increases at two-year institutions because students are opting out of the workforce. Betts and McFarland (1995, p.743) also studied the influence of market conditions on enrollment at community colleges and noted that in California, for example, a 10% rise in unemployment was associated with a 2-4% increase in enrollment due to students seeking retraining. In fact, their research asserted that community college enrollment mirrored that of unemployment; as economic conditions worsened, enrollment increased and so forth (Betts & McFarland). Their findings showed that a 1% rise in the unemployment rate is positively correlated with an 8.8% rise in full time enrollment. Research on economic influences consistently alludes to the struggle community college students and institutions endure with unexpected increases in enrollment during recessions.

It is important to recognize that state budgets are likely reduced during periods of economic turmoil. As a direct consequence, budgets for higher education, which some legislators see as discretionary, are impacted, and community colleges must decide where to shift that cost or choose to cut jobs and services. This raises the question of how community colleges raise revenue in order to provide more resources to newly arriving students.

Summary

What cannot be ignored is the overwhelming evidence that however one perceives tuition cost, it is affecting enrollment in higher education. The purpose of this research was to determine whether or not tuition and fees have an impact on enrollment, specifically in a framework that recognizes the policy adopted in 2003 by the Texas Legislature that deregulated tuition. This legislation induced a sharp rise in tuition charged at four-year institutions across the state of Texas, not to mention the hike in fees. Therefore, it is imperative to examine the possible enrollment effect on community colleges in Texas.

Given that community colleges are potentially shouldering the burden of increased student demand as a consequence of population trends in Texas, it is crucial to determine whether or not there is a substitution effect happening between four and two-year institutions as community colleges resources are limited. Equally important is the possibility of such a law influencing the enrollment of certain groups of students either based on their ethnicity and/or income level. Moreover, there are concerns that this policy shift upheld the commitment to adequately funding financial aid to account for the gross tuition increases. Currently, there is no research that specifically examines the affect rate increases at four-year institutions in Texas have had on community college enrollment. This study reviewed these potential relationships and populations impacted by increased costs due to tuition deregulation to provide further insight into higher education finance policy in Texas.

CHAPTER III

SETTING

Of the five most populated states only California and Texas have a majority minority population (United States Census Bureau, [USCB] 2005). The growth in the minority population of these states is likely attributed to their contiguous locations with Mexico, which generates a growing immigrant population. As the second largest ethnic group for both states in the 2000 Census, the Hispanic population represented about 33% of the total population of California and approximately 31% of Texas' population (USCB, 2009). This ethnic group continues to be the fastest growing in the two states and projections indicate that by 2040, Hispanics in California and Texas will represent 48% and 52% of each state's total population, respectively (California Department of Finance, 2009b; Texas State Data Center, 2008). Given that California and Texas are demographically similar, it is useful to not only review the educational attainment rates between ethnic groups but also to compare state rates in order to identify any problem areas that over the long term could impact the workforce. Furthermore, a comparison of each state's funding for community colleges is necessary since over a majority of their students attend these institutions. Both of these characteristics allude to a larger concern that is each state's higher education philosophy. The goal of this study was to identify barriers, possibly resulting from the Texas Legislature's policy and funding decisions, which students might face when deciding to enroll in higher education.

When comparing the educational attainment levels of California and Texas, it is interesting to note that California has a larger proportion of White and African Americans who hold a bachelor's degree (USCB, 2009). Approximately 29% of White and 17% of African American students, 25 years and older, in California, have a bachelor's degree compared to 25% of White and 15% of African American students in Texas, respectively (USCB). Most disconcerting for both states, given the shift towards a majority Hispanic population, is the small percentage of the Hispanic population that has earned a bachelor's degree or higher. While 8% of Texas Hispanics have achieved a bachelor's degree or higher, only 7% of California Hispanics have done so (USCB). Overall, however, Texas' educational attainment level remains behind that of California's. Moreover, Texas' Hispanic population's educational attainment level is well behind their White and African American peers and if projections are realized, Hispanics will represent 52% of the state by 2040 (Texas State Data Center, 2008). Based on these data it is crucial to examine what Texas is doing to address the educational gaps among ethnic groups.

Reviewing a state's funding of higher education is a valuable indicator of what is central to lawmakers in this policy area; it is indicative of the emphasis leaders place on access and affordability. For example, given that Hispanics have the lowest educational attainment level, are the fastest growing population of both California and Texas, and tend to enroll in community colleges more often than four-year institutions, it is important to understand at what level these states appropriate financial support to community colleges. In California, 72% of students enrolled in higher education attend community colleges, and in Texas that number reached over 50% in 2007 (Legislative

Budget Board [LBB], 2008, p.254; California Postsecondary Education Commission, 2009). In order to approximate the average revenue each state allocates per community college student, one must review each state's appropriation for community colleges and divide that by each statewide enrollment. California spends an estimated \$3,934 per student, and Texas spends less than half that at \$1,463 per student (California Department of Finance, 2009a; California Postsecondary Education Commission; LBB, 2008, p.191; Texas Higher Education Data, 2009a). The discrepancy in funding between the two most populous states, both containing a majority ethnic minority population, creates concern for the inadequate amount of funding for Texas community colleges. In Texas from 2000 to 2008 Hispanics constituted a 6% increase in overall enrollment in community colleges, Whites experienced a decrease from 52% to 47%, and African American enrollment remained at 11% (Texas Higher Education Data, 2009a). In order to provide supportive and equitable education to students who are more often enrolling in community colleges, Texas must commit to the importance of sufficiently funding community colleges similar to California.

Despite Texas' rapid population growth, demographic changes and troubling educational attainment levels, the Texas Legislature treats higher education funding as more of a discretionary item. These trends, coupled with a higher education policy that has allowed for rapid increased tuition and fee costs making financial aid immaterial, suggests importance in identifying any impact costs or other factors may have on enrollment in higher education in Texas. Of specific concern may be whether increased costs at general academic institutions have had a direct effect on student enrollment at the community college level; a substitution effect.

Characteristics of the Texas Population

Demographics in Higher Education

The demographic shift of Texas' population was anticipated by Murdock in the 1997 publication *The Texas Challenge*, followed by *The New Texas Challenge*, an update to his work in 2003. Among the findings, the research clarified the imminent threat of the state's enrollment in postsecondary education not keeping pace with a rapidly increasing population. Texas' higher education enrollment from 1970 to 1990 increased by 241.9%. Projections for 1990-2030, under migration rates from 1980-1990, show that African American enrollment in Texas higher education will increase by 41.9% and Hispanics will experience a 224.1% increase, while Whites would decrease by 6% (Murdock, 1997, p.135, 154). Thus, ethnic minorities will constitute the majority of enrollment growth. Texas' total population is projected to reflect 36.7% White, 9.5% African American, and 45.9% Hispanic, respectively (Murdock, 1997, p.21). If the educational attainment between Whites and ethnic minority groups, most notably Hispanics, is not diminished Texas will inevitably be left with a largely uneducated workforce resulting in a heavily burdened state (Murdock).

The repercussions of a scenario where this increased population is not educated would ultimately drain the state of resources due to providing adequate health and human services, primary and secondary education, public safety, and an efficient criminal justice system for the growing population. Given the concern regarding the need for continuing the economic advantage in both the United States and global economy, Texas must maintain an educated workforce.

Economic and Social Characteristics

Texas' economy is the 12th largest in the world; as such, it offers a strong job market. The unemployment rate over the past couple years has remained below or equal to that of the nation's, and in the past five years 1.29 million jobs have been created (Texas Comptroller, 2009a). As the nation entered a recession in December 2007 it has been slow to affect Texas due to the sustained strength of the state's economy, however the grace period is fading as the state enters its own financial woes. Nevertheless, Texas is consistently strong and it is hard to imagine Texas as a poor, non-competitive state. However, leaders must offer more than political rhetoric that advocates for access and affordability and instead ensure sufficient funding to higher education, thereby aiding sustained economic superiority

The composition of the Texas labor force will parallel that of the general population trends of the state. For example, by 2040 one projected scenario shows the increase in the labor force by Hispanics at 406%, while White and African American groups show an increase of 2% and 74.9% respectively (Murdock, 2003, p.123). If one assumes that educational characteristics of the minority population do not change, the educational attainment of the labor force may be in danger. Murdock (2003, p. 127) explored this possibility and found that by 2040 one projection indicated that White, African American, and Hispanic populations with a bachelor's degree will be only 47.9%, 6.3%, and 32.3% of their labor force. If the projections are realized, the total labor force in Texas will be 58.7% Hispanic, 25.2% White, and 7.9% African American (Murdock, 2003, p.127). Educational attainment will increase among ethnic minorities; however, if participation in higher education does not improve among Hispanics, these

projections offer that the labor force in Texas will be less well educated than it is currently (Murdock, 1997).

Education is the foundation of a thriving democracy as well as a flourishing economy. Dismissing the profound impact of high levels of educational attainment could foster a society's breakdown. Elected officials can decide to recognize the investment needed in the area of higher education or ignore it; the latter would have far-reaching effects.

Texas Higher Education Policy

In Texas, elected leaders have the authority and obligation to lead, construct, and execute a plan that addresses the gaps in participation by ethnic groups in higher education. The priority of the policymakers must be to first recognize that historically both Hispanic and African American populations have not participated in postsecondary education at the rates of the White population. Elected officials must have the vision as well as recognize any differences in ethnic minority groups to enable their access to and success in higher education.

Closing the Gaps

In 2000, the Texas Higher Education Coordinating Board (THECB) acknowledged the startling report by Murdock. His report became the basis for an initiative the board adopted in October 2000 that outlined a plan for the future of higher education in Texas (Texas Higher Education Coordinating Board [THECB], 2001). The plan revolved around four major goals including participation, success, excellence, and research. For the purposes of this study, participation is the most critical goal. Originally the target was to enroll 500,000 new students by 2015. This was modified after a review

of population trends in 2005, and a new target of 630,000 new students to be enrolled by 2015 was established (THECB, 2008a, p.vi). Thus the total enrollment for Texas Higher Education would be 1,650,000 by 2015 (THECB, 2008a, p.vi).

Within the adopted plan each goal had target measures. The goal of participation included four measurable targets that focused on statewide participation rates as well as rates of African American, Hispanic, and White populations (THECB, 2008a). In the 2008 progress report on *Closing the Gaps*, the statewide rates were below target, the African American population somewhat above target, the Hispanic population well below target, and the White population somewhat above target (THECB). More disconcerting was that since 2004 statewide enrollment growth had been slowing for all three of the noted subpopulations (THECB). In fact, in order for the Hispanic group to reach its 2010 target measure “growth must accelerate significantly in the next three years” (THECB, 2008a, p.vi). The White subgroup declined for the third straight year (THECB). On the other hand, African American student participation rates increased considerably since the inception of *Closing the Gaps* and are now only one-tenth of a percentage point below White student participation rates (THECB, 2008a, p.vi).

An integral piece to achieving the goal of participation recognizes the need to maintain affordability in higher education. Obvious mechanisms for preserving such a policy are controlling costs to the student by regulating tuition and fee costs and/or providing adequate financial assistance. The burden of influencing and establishing such policy is on the elected officials and leaders of the state of Texas. Unfortunately, Texas’ commitment has been less than adequate.

Tuition Deregulation Policy

In 2003, the state of Texas faced a nearly \$10 billion budget deficit entering the 78th Legislative Session. The tightening of budgets was being felt across the nation due to a sagging economy coupled with increasing healthcare costs; the circumstances were fairly stark for any discretionary items. Additionally, the philosophy of states towards budget items tended to mimic the ideology of the two-party system where one faction contended that higher education should operate as a free-market system as opposed to its being a public good worthy of direct subsidies (Hossler et al., 1997). Texas chose the former route, and, since 2003, the entire system of higher education has since operated under a free-market model enacted by the 78th Legislature through the passage of House Bill 3015. Commonly referred to as tuition deregulation (Texas Education Code ch. 54, §54.0513, 2006), House Bill 3015 was authored by State Representative Geanie Morrison of Victoria, then chair of the House Committee on Higher Education. The legislation simply lifted a statutory cap that allowed state universities to charge their own designated tuition. The justification for this change was that higher education institutions needed a substantial revenue stream because the state would not be able to adequately fund them with state dollars. Concurrently, similar high tuition policies were sprouting up across the nation, most coupled with elected leaders who verbally committed to high aid policies in order to counter the impact on students inheriting the cost burden.

Regrettably, the high aid portion of the bargain has not been realized in most states including Texas. Tuition deregulation legislation attempted to address this necessary balance when State Representative Patrick Rose of Dripping Springs recognized the need and passed an amendment to House Bill 3015 that required 20% of

any amount of tuition charged in excess of \$46 per semester credit hour to be set aside and dedicated to financial assistance for students in need. In 2007, this amendment brought in \$72,654,000 in financial assistance for undergraduate students (State Representative Patrick Rose staff, personal communication, December 1, 2008).

Although commendable, due to the unforeseen gross increase of tuition by institutions, it did not compensate for the high rates. As Texas' elected leaders boast to recruit the ethnic minority students into higher education and as a result produce an educated workforce and sustain a strong state, they have created a barrier to entry for the students. The issue of tuition costs and lack of financial assistance to compensate for hikes cannot be ignored as their implications resonate in those potential students who seek enrollment in higher education.

Tuition increases across Texas The state legislature has done little to discourage institutions of higher education from increasing tuition since deregulation. By failing to adequately fund these institutions through direct state subsidy, there are limited alternatives for these institutions to shift a growing cost of higher education onto the students. On the other hand, institutions operate with little accountability and oversight although funded by taxpayer dollars. While there is abdication of accountability and a continuous blame game between the Texas Legislature and the institutions, students are suffering and being forced to address increasing college costs.

Although it was the state legislature that deregulated higher education tuition, it is the individual institutions that have taken these increases to astonishing levels. Texas has seen designated tuition, which is the now uncapped statutory tuition, rise to a statewide average of 113 % since the implementation of House Bill 3015 (THECB, 2008c, p.27).

Institutions such as The University of Texas at Dallas on the high end and University of Houston-Victoria on the low end have seen their designated tuition rates increase 193% and 57%, respectively, in only four years (THECB, 2008c, p.27). Designated tuition increases are not, however, the entire story of the cost incurred by the student at these general academic institutions.

Mandatory and course fees charged by individual institutions that accompany tuition have a discernible impact on costs too. When aggregating the increases in designated tuition and fees, there is a tremendous overall cost increase to enter higher education. Moreover, this does not account for statutory tuition, which requires an additional \$50 charge per credit hour per semester (Texas Education Code ch. 54, §54.051(c), 2006). In fall 2003, The University of Texas at Austin had the highest total charge in the state for a public institution at an average of \$2,721 per student taking fifteen semester hours (THECB, 2008c, p 28). By fall 2007, The University of Texas at Austin experienced a nearly 50% change in the average student charge at \$4,065 for the semester (THECB, 2008c, p.28) These increases across the board for both designated tuition and fees resulted from institutional governing board decisions.

Texas statute authorizes the governing boards of individual community college institutions to set tuition rates (Texas Education Code ch. 54, §54 051(n), 2006) However, the missions of these institutions are vastly different than those of a four-year institution. Community colleges are committed to an open-door policy that enables low-cost entry for all students who seek postsecondary education. As such, sustaining affordability is the priority, and rates reflect minimal increases in Texas. On the other hand, as demographics shift and students enroll in community colleges at an increasing

rate, it will be a struggle to maintain the low-cost option unless the state is willing to appropriate more resources to these institutions.

Most troubling, this trend to increase tuition at four-year institutions has continued, and it appears there is no initiative by leadership to slowdown the escalation. This behavior demonstrates oversight, if not neglect, by both lawmakers and institutions and a dismissal of the urgent need to maintain college affordability in order to provide access to all students. More important, policy that cultivates enrollment opportunities for ethnic minorities must be developed or all will suffer.

State Appropriations for Institutions of Higher Education

The state's leaders defended enacting tuition deregulation in 2003 arguing that they were obligated to do so due to a budget deficit and little discretionary revenue available. Five years later, Texas found itself with surpluses, prompting concern regarding the appropriations process and the priority of higher education since the deficit. Although most high-tuition, high-aid policies are sold under the pretense of an accompanying substantial grant program, states have rarely provided for this. Texas did not enhance grant funding in a significant way to compensate for the increased costs to the student, nor did it provide any incentive in the form of bolstering direct institutional funding in order to legitimately rein in institutions regarding their tuition increases.

Specific to this research study, general academic institutions refer to four-year institutions as recognized by the LBB and the THECB. Furthermore, while two-year institutions are the junior colleges in Texas statute, they are referred to as community colleges for this study.

Prior to the economic downturn following September 11, 2001, the All Funds Appropriation for general academic institutions totaled \$4.7 billion and for public community/junior colleges at \$1.5 billion, over the 2002-2003 biennium (LBB, 2002, p.151). These institutions were serving a student enrollment of 455,718 in general academic institutions and 515,770 in community colleges (LBB, 2004, p.211). The enrollment for community colleges had increased at the rate of 15.1% while general academic institutions experienced a 9.9% increase (LBB, 2004, p.211). By 2002, community college students represented 46.8% of higher education enrollment, and general academic institutions trailed with only 41.3% (LBB, 2004, p.211). However, between 2002 and 2004 enrollment for both general academic and community college institutions increased by only 5.8 % (LBB, 2005, p.194). The budget enacted during the 2003 Session saw an All Funds increase for general academic institutions of 3.3%, totaling \$5.1 billion for general academic institutions; however, a 1% decrease for community college funding was adopted (LBB, 2004, p.181). Therefore, even though enrollment rates in community colleges outpaced those in four-year institutions in Texas, community colleges incurred a reduction in funding while their four-year institution peers still enjoyed a modest increase during a period of fiscal restraint.

In Texas, 1998 enrollment numbers for both community colleges and general academic institutions were comparable, hovering around 400,000 students in both sectors (LBB, 2002, p.170). By 2008, enrollment numbers reached almost a 100,000 student difference between general academic institutions and community colleges (Texas Higher Education Data, 2009a, 2009b). As of the 2008-2009 biennium, the All Funds appropriation for general academic and community/junior colleges totaled \$6 billion and

\$1.7 billion, respectively (LBB, 2008, p.191). Therefore, from the appropriations made during the 2001 Legislative Session, prior to budget cuts in the 2003 Session, to the most recent 2008-2009 proposed budget, general academic institutions experienced a total increase of All Funds by approximately \$1.2 billion and community/junior colleges experienced an increase of about \$200 million.

These numbers raise some concern as to the adequacy of funding by the state for a fast growing population like that of community college students in Texas. According to Haurwitz (2008), funding for community colleges has not “kept pace” with the enrollment at these institutions. In fact, the state appropriation per student at the community college level from 2000 to 2007 dropped 12% (Haurwitz). This was not surprising to community college presidents like Stephen Kinslow, president of Austin Community College, who acknowledged “we’re the institutions carrying the freight now...” (Haurwitz). Moreover, with rising tuition as a consequence of tuition deregulation and less state funding to provide essential resources to community colleges, costs may have to shift to the students at these historically low-cost institutions.

Financial Aid Policy

One of Texas’ oldest grant programs, Texas Public Education Grant, formerly entitled Texas Assistance Grants, was developed by the 64th State Legislature so that “the state can achieve its full economic and social potential only if every individual has the opportunity to the full extent of his capabilities and only when financial barriers to his economical, social and educational goals are removed” (Texas Education Code ch. 56, §56.002, 2006). This grant required individual institutions to set aside a certain amount of funds to administer grants to eligible students demonstrating financial need (THECB,

2008b). This policy provided approximately \$129 million dollars in grants for a total of 112,355 students in fiscal year 2007, which left the average award at \$1151 per student (THECB, 2008b, p. 4). However, although this program was both constructive and visionary for its time, the Texas Public Education Grant and state grant programs established since have not had sufficient financial appropriations in order to offer support to those students in need.

During the 1999, 76th Legislative Session when designated tuition was still regulated by the state, there was a movement spearheaded by State Senator Rodney Ellis of Houston that recognized the growing need for financial assistance by students seeking higher education in Texas. This effort resulted in the establishment of the Toward EXcellence, Access, and Success Grants (TEXAS Grants) program, Texas' most substantial grant opportunity. Under the program students are eligible for grant funds if they demonstrate financial need, complete at least the Texas High School Recommended Program, meet certain academic standards, and take a minimum of nine credit hours (THECB, 2008b). This program anticipated a boost in funding from the state that would be equitable to the increase in tuition costs on students as a result of tuition deregulation. Regrettably, current program funding levels afford relief to only 51% of eligible students (THECB, 2008b, p 4).

For community college students, grant availability is even more dismal. The Texas Educational Opportunity Grant was created in 2001 under the then moniker TEXAS Grant II. This grant is available for students who are attending community colleges and meet requirements defined in statute, which include but are not limited to demonstrating financial need and taking at least half of the full load of courses (Texas

Education Code ch. 56, Subchapter P, 2006). Commissioner of Higher Education of Texas, Dr. Raymund Paredes, stated that funding for this grant is, “woefully inadequate” (Haurwitz, 2008).

In Texas, students who are eligible to receive TEXAS Grants and Texas Educational Opportunity Grant monies but are unable to receive funds because of state funding levels often represent the defined group that Texas claims to be recruiting in order to close the gaps in participation. Income trends tend to reveal themselves through ethnicity because lower to middle income brackets contain a larger proportion of the minority population. These identified populations find themselves financially strapped, working a job to afford to live, attending school part time enable to work, and sometimes raising a family. Murdock (2003) predicted that those in need of at least some financial assistance would outpace enrollment by 2040. If Texas continues down the path of high tuition without recognition of need and sufficient aid, the pricing-out of students into higher education poses an inexcusable outcome. If the goals of *Closing the Gaps* cannot be fulfilled because of the Legislature’s ineptness, and thus the dire warnings by Murdock are realized, the results are far-reaching.

State appropriations for financial aid The Texas Educational Opportunity Grant Program (TEOG) and TEXAS Grants are instrumental in understanding state financial aid to students enrolling in higher education. The TEOG provides financial relief specifically for student enrolling in community colleges, while the TEXAS Grant is the largest program and is available to all students.

During the 2001 Legislative Session, the appropriation for TEXAS Grants was

\$295.3 million over the biennium and served 60,879 recipients (LBB, 2001, p.III-51). The same session appropriated \$10 million over the biennium to the Texas Educational Opportunity Grant Program (LBB, 2002, p.172). By 2007, the proposed budget for 2008-2009 reflected \$427.9 million allotted for TEXAS Grants, which in the second year of the biennium would serve an estimated 69,320 students (LBB, 2007b, p. III-47). Therefore, in six years the state only increased funding for TEXAS Grants to cover 8,441 additional students. This small increase in recipients, which provided grants to only 51% of eligible students, resulted from the growing increase in tuition. Consequently, the grant program is unable to compensate for the tuition hikes without comparable funding.

In the same time period, the Texas Educational Opportunity Grant program was allocated \$7 million per year of the biennium (LBB, 2007b, p.III-53). Grant funding for community college students is alarmingly low; in fact, it covers only 4% of eligible students (THECB, 2008b, p.4). In previous years this program had a fixed funding stream of about \$9 to \$10 million, so the increase to \$14 million was nominal (LBB, 2007b, p.III-53). As of 2007, the program provided 3,707 grants to students who were in financial need and met certain requirements (THECB, 2008b, p 4). If Murdock's projections are realized, the number of community college students with financial need will increase by 120.1% (Murdock, 2003, p.173). Given that community colleges in Texas are serving almost 600,000 students, financial aid is provided to less than 1% of those enrolled.

These numbers illustrate the growing gap between those who are in financial need and eligible for state grants and those who are actually served by state programs. This does not account for those who are in need and meet the financial criteria but cannot meet

the 9 hour minimum requirement because they are working and/or raising a family. The adoption of deregulated tuition policy spurred increased costs for students and was not accompanied by an effort to balance those hikes through financial assistance. Given the state's adoption of *Closing the Gaps* this was in severe contrast to key concepts that urged the maintenance of affordability through the adequate funding of financial aid for students in need. Students in need comprise the population group that Texas leaders aim to recruit into the system. Not surprisingly, more students are entering community colleges at a significantly increasing rate than they are in general academic institutions because, currently, community colleges continue to provide low-cost options.

Community College System in Texas

Background and Purpose

Many consider Jacksonian democracy the foundation of two-year schools because it allowed for social mobility, a more educated citizenry, and provided a shared good (Pedersen, 2005). It was thought that this idea further entitled these schools to public funds because they were serving not only society but also local communities. This focus on public monies, which included federal, state, and local funds, provided the low cost entry in order to grant access to all people (Pedersen). This arrangement has allowed for the maintenance of an open-door policy for community colleges across the nation.

Closing the Gaps forecasted in its original 2000 plan that by 2015, 60 % of students in Texas would be enrolled at community colleges (THECB, 2001, p. 8).

This research study focused on the community college system in Texas, composed of 50 community college districts. Statutory language strictly outlines that these two-year institutions are “primarily serving their local taxing districts and service

areas in Texas” (Texas Education Code ch.130, §130.0011, 2006). According to law, the THECB has “general control” over community college districts in the state, and it is the Commissioner of Higher Education’s duty to carry out such policies as well as enforce them to be in compliance with statute (Texas Education Code ch.61, §61.060, 2006). Additionally, the board grants the creation of a community college district, and certification by the Commissioner is then required (Texas Education Code ch. 61, §61.062, 2006). Those issues that are not addressed in statute are under the control of the local district (Texas Education Code ch. 61, §61.060, 2006).

The distribution of funding for community colleges in Texas is split between federal funds, state funds, local taxes, and tuition and fees (LBB, 2007a). In the last several years, almost 60% of funds were a combination of state and local funds, each comprising about 30% (LBB, 2007a, p.18). State funds are prescriptive and used for the purpose of “paying salaries of instructional and administrative forces...and the purchase of supplies and materials for instructional purposes” (Texas Education Code ch. 130, §130.003(c), 2006). These state dollars are distributed to community colleges based on a contact hour formula that is defined in statute and further regulated by rulemaking authority granted to the THECB (Texas Education Code ch.130, §130.003, 2006). Thus, non-state funds are available for infrastructure and construction at these institutions (LBB, 2002). As for tuition and fees for these institutions, they have remained fairly steady constituting around 19.5 % since 2004 and the remaining revenue largely flows from federal funds (LBB, 2007a, p.18).

Policy Implications on Community Colleges

Since tuition deregulation in Texas, it is important to continue to review tuition rates at community colleges to determine how or if they have changed. Tuition rates for these two-year institutions are set by the governing board of the district within the confines of the law, which denotes a price floor of which the institution cannot charge below (Texas Education Code ch. 54, §54.051(n), 2006). However, there is no restriction on how high rates can be set. As tuition at four-year institutions increases there may be a substitution effect in that students will opt out of four-year institutions and into a lower cost option. If that hypothesis were true in Texas, an increase in student participation may place community colleges in a position of having to provide more resources, including but not limited to faculty, staff, facilities, and student support services. When the distribution between discretionary and obligatory monies is at issue, it would be challenging for community colleges to identify additional funding sources. Moreover, the local nature of such institutions would require districts to ask their taxpayers to augment their budgets through tax rate increases. A remaining option shifts this needed revenue to the student, which is typically accomplished through tuition and fee increases. The latter would conflict with the purpose and mission of these institutions that provide low-cost and open-door entry. This situation could result in a substitution effect but with no lower cost option.

At its heart, *Closing the Gaps* focused on enabling increased participation from low participating subpopulations, specifically Hispanic and African American groups (THECB, 2001). Minority populations tend to represent a larger portion of low to middle income students where financial support is likely to influence their enrollment decisions.

Students seeking higher education in Texas are likely to consider community colleges instead of general academic institutions due to increasing education costs, thus impacting the increasing influx of students in community colleges. Texas' increase in minority populations in the 21st century will certainly impact community colleges as they are providers to a majority of the state's ethnic minorities. The state of the nation's economy and its likely delayed repercussions on Texas will also influence student enrollment in community colleges. When unemployment rises, student enrollment tends to increase. As such, this would cause an additional hardship to the already heavily burdened community college system in Texas.

If increased costs at general academic institutions cause students to substitute enrollment into the lower cost alternative of community colleges or simply due to rapid population growth, demographic shifts and higher unemployment rates community colleges are experiencing an incursion of students, it behooves Texas to maintain the access and affordability at these institutions or students may opt out of higher education all together.

Summary

Since the inaugural year of *Closing the Gaps* enrollment trends are worth noting. As of 2000, Texas' participation rate for higher education was below the national average (THECB, 2001). There appears to be a disturbing finding in the 2008 progress report of *Closing the Gaps* that participation rates have slowed down. Until 2003, enrollment was growing at the rate of 15.2%, and since that year growth has slowed to 6.8% (THECB, 2008a, p. 1). This slowing of growth can be ascribed to the "lower enrollment rates for first-time undergraduates at public institutions" (THECB, 2008a, p.1). Since 2003, when

institutions were allowed the freedom to set tuition rates, costs for students have escalated, rapidly forcing students who choose to enroll to incur a larger burden.

As of 2007, Texas served approximately 1.2 million students in the higher education system, and leaders still propose to recruit and increase ethnic minority population groups in order to “close the gaps” in participation. The Texas Higher Education Plan strictly laid out policies to ensure these goals were met, which can be seen in their recommendations to “set tuition and fees in a manner that closes the gaps in participation” and “to help increase participation...[the] amount of grants and scholarships must be increased” (THECB, 2001, p. 2). Equally crucial was the plan’s recognition that “an unknown number of students never consider higher education because they believe they cannot afford it” (THECB, 2001, p.10). Meanwhile state lawmakers have passively accepted questionable behavior and have not addressed accountability pertaining to institutions of higher education by ignoring the dramatic increases in tuition and fees. On the other hand, the legislature has neglected to adequately fund institutions thus, encouraging the cycle of tuition and fee hikes

Additionally, there is minimal recognition of the need for financial assistance for students as these costs swell. As this cycle continues, students in need will outnumber those who are not in need. More importantly, the middle class is being carved out by such circumstances because they are neither rich enough to afford higher education nor poor enough to obtain a grant. This leaves loans as their only option for entry.

The electorate votes for leaders entrusting them to not only govern but to detect and tackle state problems. Texas’ elected officials have Murdock’s findings, which offer insight into constructing state policy in higher education. However, it appears there is

lack of commitment by state leaders, both elected and appointed, to the goals needed to ensure increased participation. It is this expanding minority population that will determine the future of Texas, and it is imperative that the state recognize and address their challenges and needs.

Since the enactment of tuition deregulation, it is crucial to know whether or not students' decisions to enroll in higher education are connected to the costs that they are responsible for. Additionally, whether costs influence certain ethnic and income groups' participation is also a concern. Furthermore, whether increased costs at general academic institutions cause students to attend community colleges or opt out of higher education altogether is cause for concern. If the continuing increase in tuition and subtle but drastic increases in fees, coupled with lack of financial aid through grant funding are creating further barriers to entry it, is time for all leaders of the State of Texas to address these issues and sincerely invest in effective policy.

CHAPTER IV

METHODOLOGY¹

This study addressed whether or not a substitution effect is occurring in Texas. The substitution effect theorizes as tuition and fees at general academic institutions increase, community college enrollment increases. As a result of tuition deregulation in Texas and the resulting spikes in tuition and fees charged by general academic institutions, it is important to examine this theory to determine if the policy impacted community college enrollment. The low cost alternative would provide affordability and access to students who perceive costs as a significant factor when weighing enrollment decisions. Additionally, this theory is predicated on the assumption that costs at general academic institutions were not completely pricing out students from higher education altogether.

Data from 2000-2006 were analyzed for this study since this time period represents the pre and post implementation of policy in spring 2004 when institutions began their tuition increases. In order to verify the major impact of general academic institution tuition and fees on community college enrollment, the statistical analyses controlled for other economic and social determinants that influence enrollment. These determinants were noted in previous student demand research. These determinants include: year, costs of community college and general academic institution, unemployment, income, ethnic minority population, general population growth, and

¹ I would like to thank Dr Hyun Jung Yun for her contribution of the methodology used for this research

enrollment at general academic institutions. The following are the hypotheses, variables and analysis.

Hypotheses

1. As costs at general academic institutions in Texas increase, enrollment in community colleges increases.
2. As an area's economic conditions worsen, community college enrollment increases.
3. As grant aid for students increase, community college enrollment increases.

Variables

Dependent Variables

In this study two models were used in order to recognize both the total enrollment and the ethnic minority enrollment ratios at community colleges in Texas as dependent variables. Both dependent variables reflected enrollment at all 50 community college districts in the 2000 to 2006. All enrollment data were collected from the THECB through the Texas State Data Center (THECB, personal communication, December 23, 2008). The enrollment numbers represented all (full and part time) students, ages 18 to 54, who were enrolled for each fall semester of 2000-2006. This enrollment number excluded dual enrollment and international students.

The total enrollment data for all community college districts used as the dependent variable in Model 1 were additionally disaggregated by ethnicity for Model 2, which reflects White, African American, Hispanic, and other subpopulations. This is based on research that indicates that low income students are more cost sensitive and tend to be overrepresented by ethnic minorities; thus, these subgroups are more likely to enroll

in community colleges than in four-year institutions. Therefore, for the purposes of the statistical analysis in Model 2, the dependent variable of the ratio of ethnic minority enrollment reflects the percentage of ethnic minority groups within community colleges.

Independent Variables

In addition to the main independent variable of cost, multiple independent variables were recognized since their influences were supported by previous student demand studies. These independent variables were used to control for their potential influences on enrollment as they pertained to a substitution effect. Based on prior research, community college and general academic institution costs, the unemployment rate, grant aid, income, ethnic minority population, general population growth, and enrollment at general academic institutions were potential factors influencing enrollment. All independent variables discussed are used in both Models 1 and 2, and all are annual values representing 7 years.

Cost. Cost at general academic institutions in Texas is an independent variable. This is necessary in order to determine if there is an impact on community college enrollment; under the theory of a substitution effect an increase would be redirecting students to the alternative. Cost is represented by the sum of both the average tuition and average fees as reported by the National Center for Education Statistics (NCES) through the Integrated Postsecondary Education Data System (IPEDS) (National Center for Education Statistics, 2008). As an independent variable, cost of community college controls for the impact a less expensive rate has on enrollment at two-year institutions. In addition, cost can help determine if there is a significant relationship between their cost and enrollment.

For the 35 general academic institutions in Texas, the data collected representing cost are derived by analyzing the average tuition and fees for in-state students who are enrolled in 12 hours per semester for at least one year. The community college data represented cost based on in-district charges to students and are defined as the average tuition and fees for students enrolled in 12 hours per semester for at least one year. Costs such as living expenses and books were not calculated as part of the total cost. Only costs that were set through statutory and institutional authority, and thus were automatic, required charges to the student once enrolled in an institution of higher education were reviewed. These costs were then adjusted for the consumer price index of 2000 (Bureau of Labor Statistics, 2009). Sul Ross State University's Rio Grande College data were omitted from the state's 35 general academic institutions since their tuition and fee data were not reported to NCES through the IPEDs system

Economy. The economy's impact on community college enrollment was defined as an independent variable, specifically the unemployment rate of the community college district service area. In an attempt to support previous research, the study focused on the unemployment rate, which can affect community college enrollment when unemployment is high. The unemployment number for each community college district service area in Texas was collected from their respective Annual Financial Reports, which are submitted to the Texas Legislative Budget Board.

Income. In addition, income per capita in the community college district service area was defined as an independent variable. These data were collected from the Annual Financial Reports submitted by each community college district to the Texas Legislative Budget Board.

Enrollment in general academic institutions. Another independent variable in this study included annual student enrollment in Texas' four-year institutions. The enrollment data collected for these general academic institutions were obtained from the Texas Higher Education Data website, which is maintained by the THECB (THECB, 2009b). Enrollment is defined as all undergraduate students in credit hour courses on the 12th class day of the fall semester.

Grant aid. Research has indicated that students may respond differently to various cost measures as opposed to a single net measure. Grant aid was used as two independent variables to account for the influence that each state and federal financial aid program might have on the perceived cost to the student. Each independent grant variable is defined as the statewide average grant award per student per year for both the state TEXAS Grant and the federal Pell Grant. The average was calculated by taking total funding for each grant program divided by the number of recipients for each. The data for these awards were collected from the Texas Higher Education Coordinating Board (THECB, personal communication, September 29, 2008).

Population growth. Population growth was considered in this study. Specifically, one of the population related independent variables is defined as the total population of the 50 community college district service areas, restricted to 18-54. The other independent variable related to population is defined as the ethnic minority population, composed of African American, Hispanic, and other non-White groups. These numbers were collected from the THECB as projected by the Texas State Data Center (THECB, personal communication, December 23, 2008).

Analysis

In testing the hypotheses a Mixed Linear Model in SPSS 16 was utilized to develop a longitudinal linear model with the fitted AR(1) structure of error covariance matrix. The AR(1) function provides a realistic yearly distance and thus proves time correlations in a model (Diggle, Heagerty, Liang, & Zeger, 2002). In order to track annual changes from 2000 to 2006 in both community college total enrollment and the ratio of ethnic minority enrollment in community colleges, each dependent variable was used in a separate model. See Table 1 for dependent and independent variables used in the model.

Table 1 Dependent and Independent Variables

Dependent Variable	Model 1 Fall semester enrollment of 18-54 year olds in a community college Model 2 Fall semester ratio of ethnic minority enrollment of 18-54 year olds in a community college
Independent Variable	
χ_1 = Time (Year)	($\chi_1=0$ (2000), 1(2001), 2(2002), 3(2003), 4(2004), 5(2005) and 6(2006))
χ_2 = Income	Income per capita in a community college district service area
χ_3 = Unemployment	Unemployment rate in a community college district service area
χ_4 = Tuition and fees in a community college	Average tuition and fees for a student enrolled in a community college for one year, for at least 12 hours per semester
χ_5 = Tuition and fees in a general academic institution	Average tuition and fees for a student enrolled in a general academic institution for one year, for at least 12 hours per semester
χ_6 = General academic institution enrollment	Fall semester enrollment at a general academic institution
χ_7 = Federal grant	Average Pell Grant per student per year
χ_8 = State grant	Average TEXAS Grant per student per year
χ_9 = Ethnic minority population	Ethnic minority population in a community college district service area
χ_{10} = Total population	Total population in a community college district service area

CHAPTER V

RESULTS AND DISCUSSION

The purpose of this research was to determine if cost increases at general academic institutions in Texas, in response to tuition deregulation, have impacted student enrollment in community colleges; and whether or not there a substitution effect happening in Texas. There were several independent variables, which enabled recognition of factors present in other student demand studies determined to have statistically significant relationships with community college enrollment.

Two models were used to test hypotheses on changes in community college enrollment by tuition increases at general academic institutions from year to year during the tuition deregulation adoption and implementation period. In Model 1 the dependent variable is total community college enrollment and in Model 2 the dependent variable is the percentage of ethnic minority enrollment. This delineation was determined based on the review of literature, which showed that ethnic minorities tend to be affected by different factors than their White peers, which subsequently influences their enrollment patterns. In order to identify any differences between minority and nonminority populations, Model 2 was used. The following results from the quantitative analyses address the hypotheses outlined in Chapter IV.

Analyses

According to the first longitudinal linear model using the community college enrollment as the dependent variable and after controlling for economic and social conditions, Model 1 shows that average tuition and fee increases at general academic institutions did not have a significant impact on community college enrollment in Texas (see Table 2). This finding addresses the main purpose of this research, which as previously noted is to determine if students facing increased tuition costs at general academic institutions in Texas are substituting their education at community colleges. Accordingly, there is no substitution effect currently happening in Texas; thus the finding failed to prove the main hypothesis of this research.

Table 2 Outcomes of Variables Impacting Student Enrollment

	Model 1 Total Community College Enrollment		Model 2 Percent of Ethnic Minority Enrollment in Community College	
	Coef	<i>t</i> (<i>p</i>)	Coef	<i>t</i> (<i>p</i>)
Intercept	-718424.100	-3.123 (0.02)	-14.014959	-2.492 (0.13)
Year	361.267**	3.125 (0.02)	0.07183**	2.541 (0.12)
Income	0.31	1.367 (0.173)	1.90E-007	335 (0.738)
Unemployment	58.406	0.953 (0.342)	-0.000813	-0.549 (0.583)
CC Cost	-0.080	-0.283 (0.777)	8.17E-006	1.177 (0.240)
GAI Cost	237*	1.763 (0.079)	-4.4E-006	-1.340 (0.182)
GAI Enrollment	0.44	1.202 (0.234)	-4.5E-006**	-2.627 (0.009)
Pell Grant	-1.184**	-2.504 (0.013)	2.47E-005**	2.163 (0.032)
TEXAS Grant	-1.266***	-2.597 (0.010)	-6.8E-006	-0.578 (0.564)
Minority Population	0.45***	10.065 (0.000)	4.54E-007***	3.267 (0.001)
Total Population	0.07***	2.616 (0.009)	3.61E-008	447 (0.656)
σ^2	7480504.5		0.038759	
P	0.979525		0.997723	
*** $p \leq 0.01$, ** $p \leq 0.05$, * $p \leq 0.10$				
-2*Max loglik	4463.482***		-1136.096***	

In Model 2 (see Table 2), where the dependent variable is the percentage of ethnic minority enrollment, the results also show an insignificant relationship between the

dependent variable and average tuition and fees charged at general academic institutions. This also failed to prove the hypothesis, which proposed that as the average tuition and fees at general academic institutions increased the ratio of ethnic minority enrollment at community colleges would increase. This outcome reveals that tuition and fee increases at the general academic institutions are not exclusively affecting ethnic minority enrollment behavior at community colleges.

As Model 1 shows (see Table 2), although there was no statistically significant relationship between general academic cost and community college enrollment, the independent variables of year, average Pell Grant, average TEXAS Grant, minority population of the community college district service area, and total population of the community college district service area do have a statistically significant impact on community college enrollment (see Table 2). In Model 2, year, general academic institution enrollment, average Pell grant, and minority population of the community college district service area were found to have a statistically significant impact on the percentage of ethnic minority community college enrollment (see Table 2). The analysis of the dependent and remaining independent variables that indicated a statistically significant relationship support previous student demand research, most importantly that grant aid influences student enrollment behavior in higher education.

The first mixed linear analysis found that from 2000 to 2006, including 2004 which was the first time institutions could utilize tuition deregulation, enrollment in each community college increased by 361 students ($t=3.125, p\leq 0.02$). Model 1 also shows that as the average Pell Grant increased by \$100, then enrollment in community colleges decreased by 118 students ($t=-2.504, p\leq 0.13$). Additionally, as the average TEXAS Grant increases by \$100, then enrollment in community colleges decreases by 126 students ($t=-$

2.597, $p \leq 010$). Finally, as the minority population of the community college district service area increased by 100, the enrollment at community colleges increased by 4 students ($t=10.065$, $p \leq 000$). As the total population of the community college district service area increased by 1000, the enrollment at community colleges increased by 7 students ($t=2.616$, $p \leq 009$).

Model 2 results indicate that over the 7 years of pre and post tuition deregulation adoption (2000-2006), ethnic minority enrollment in community colleges increased by .7% ($t=2.541$, $p \leq 012$). The model also revealed that as general academic institution enrollment increased by 100 students, ethnic minority enrollment in community colleges decreased by .0005% ($t=-2.627$, $p \leq 009$). Notably, as Pell Grants increased by \$100, the percent of ethnic minority enrollment at community colleges increased by .002 ($t=2.163$, $p \leq 032$). This positive relationship is in contrast to the inverse relationship found in Model 1 between Pell Grant and total community college enrollment. Moreover, there was no statistically significant relationship found between the TEXAS Grant and the percentage of ethnic minority enrollment in community colleges as there had been in Model 1 when total community college enrollment was the dependent variable. These mixed findings will be discussed at length later in this chapter. Finally, Model 2 indicated that as the minority population of a community college district service area increased by 100, the ratio of the ethnic minority enrollment in community colleges increased by .00004% ($t=3.267$, $p \leq 001$). The following is an exploration and discussion of these statistically significant relationships.

Discussion

Time

There was a strong, positive relationship between time measured from year to year and community college enrollment in Model 1 and the percent of ethnic minority enrollment in Model 2 (See Table 2). Therefore, the expected phenomenon, validated through the analysis, was that over time, student enrollment at community colleges increased for both populations.

Pell Grant

The Pell Grant, an independent variable, supported research findings that financial aid impacts enrollment decisions in higher education. Findings in both Model 1 and 2 of this research reinforced this theory. However, as reported in Model 1, when the average Pell Grant increased, the enrollment in community colleges decreased; this was unexpected (see Table 2). A probable explanation for this negative relationship is that as the Pell Grant stipend increased, students were using this augmented financial support to substitute their community college enrollment for enrollment at a general academic institution in Texas. Therefore with this aid, cost of entry at the general academic institution became less of a factor and subsequently enrollment at the community college level decreased.

Conversely, in Model 2, the statistically significant relationship between Pell Grant and the percent of ethnic minority enrollment was positive. Therefore, as the average Pell Grant stipend increased, the percentage of ethnic minority enrollment at community colleges increased. What this demonstrates is that as the average stipend for Pell Grant increased, ethnic minority groups were utilizing the financial support to enroll at community colleges at a considerable rate, and not substituting enrollment at a general academic institution. Research has shown that ethnic minorities more often attend

community colleges than they do four-year institutions. This follows since cost is a significant factor in ethnic minorities' consideration regarding their enrollment in higher education. This can be directly related to the fact that ethnic minorities are most often overrepresented in the low to middle income brackets. Additional financial aid through increasing the Pell Grant stipend appeared to be an important factor in recruiting more ethnic minorities into community colleges.

However, factors other than socioeconomic ones, which were not explored in this research, may provide an explanation for ethnic minority enrollment behavior as well as cultural, familial, and academic issues. These include but are not limited to enrolling in a higher education institution that is in close proximity to family, parental expectations, a student's own priorities within higher education, availability of information pertaining to higher education, and the perception of a student's own preparedness to attend a four-year institution. These additional factors could shed light on increased ethnic minority enrollment in community college.

Finally, the mixed outcomes explained enrollment behavior of different ethnic groups. Model 1 shows a negative relationship between Pell Grant stipend increases and total community college enrollment, but that relationship becomes positive when the dependent variable exclusively represents a percentage of ethnic minorities. This change raises concern that the results under Model 1 indicate that White groups are utilizing grant aid and attending general academic institutions and replacing their community college choice at a significant rate. This differs from Model 2 where ethnic minority groups are utilizing this increase to attend community colleges. In Model 1, Whites appear to be disproportionately outpacing enrollment rates at general academic

institutions with increased Pell Grant options as compared to their ethnic minority peers. Although there are other explanations for the mixed results, further research that specifically focuses on this issue is necessary to help clarify why the enrollment behavior varies among ethnic groups. Additional research is necessary to contribute to higher education policy in order to address the disparity of higher education enrollment among these populations.

TEXAS Grant

As Texas' largest grant program, the TEXAS Grant was used as an independent variable. Results were mixed from Models 1 and 2. In Model 1, the TEXAS Grant had a statistically significant inverse relationship with total community college enrollment as did the Pell Grant under Model 1. Students utilized the increased aid to enroll in general academic institutions in place of the community college. In Model 2, there was no statistically significant relationship between an increase in the TEXAS Grant stipend and the percent of ethnic minority community college enrollment.

The inconsistency in the outcomes between the two models for the TEXAS Grant and between the two respective grant variables might be explained by the different eligibility requirements students must meet in order to receive aid. The eligibility for a Pell Grant depends on limited factors in comparison to TEXAS Grant, one of which is the number of credit hours a student must be enrolled per semester. For example, the Pell Grant is available for students who are taking less than half the credit hours of the full time requirement at a given institution (United States Department of Education, 2009). Whereas, the TEXAS Grant requires that students take at least nine credit hours in order to be eligible for aid (Texas Administrative Code Title 19, Part 1, ch. 22, Subchapter L,

Rule §22.228(a)(7)). Additionally, the TEXAS Grant recognizes academic requirements and progress that are not a part of the Pell Grant criteria (Texas Administrative Code Title 19, Part 1, ch. 22, Subchapter L, Rule §22.228(a)(6) & (b)(7)). As such, the Pell Grant is less strict on its eligibility criteria and focuses more intently on need, in comparison to the TEXAS Grant program. Thus, the Pell Grant program assists a greater number of students, particularly ethnic minority students.

Consequently, students in community colleges are often enrolled part-time due to a full time job and/or raising a family, both of which necessitate a flexible schedule. Due to the requirements for the TEXAS Grant that preclude students taking less than nine hours a semester, less community college students and subsequently less ethnic minority students are likely qualified for the grant. This would explain the finding that there is no relationship between increases in the average TEXAS Grant award and the percentage of ethnic minority community college enrollment. Moreover, it reinforces the finding that White students are eligible and using financial aid, in this instance the TEXAS Grant, and opting into the general academic institutions at a significantly disproportionate rate over their ethnic minority peers. This finding supports the need for further research regarding the utilizing of grant monies and enrollment.

Minority Population

The relationship between minority population and community college enrollment was also found to be statistically significant in both models (see Table 2). In Model 1, the findings suggest that as the minority population in the community college district service area increased, the overall enrollment of the institution increased. In Model 2, as the minority population increased in the community college district service area, the

percentage of ethnic minority community college enrollment increased as well. Both outcomes are logical and expected. The result also indicated that the percent of ethnic minority enrollment in community colleges was maintaining pace with area minority population growth, which is representative of the demographic shifts in Texas.

Total Population

A statistically significant positive relationship between the total population of a community college district service area and the total community college enrollment was found in Model 1. However, in Model 2, when the White population was excluded from the dependent variable, there was no statistically significant relationship. The absence of a relationship in the second model implies that as the total population increased in the community college district service area, the rate of Whites entering the community college was higher and disproportionate to the enrollment of their ethnic minority counterparts.

Given the results between the independent variables of minority population and total population for a community college district service area, it appears that the percentage of ethnic minority enrollment, although sustaining rates similar to their own population growth, were not comparable to the pace of White community college enrollment. Murdock's (1997) research recognized the trend of the rapidly increasing ethnic minority population in Texas, coupled with an unmatched educational attainment. Therefore, if ethnic minority groups are not enrolling in higher education the gap between the educated and uneducated will be difficult to surmount.

Summary

This study focused on the impact of increased tuition costs at Texas general academic institutions and community college enrollment. This theory of a substitution effect in Texas was rejected through the research. However, the lack of support for the hypothesis does not indicate that this phenomenon will not become statistically significant over time with the continued practice of unrestricted tuition and fee hikes by institutions. Further research which focuses on the issue of tuition deregulation's affect on student enrollment is recommended, especially since there is a growing concern about the maintenance of an educated workforce in a state that faces large demographic shifts.

The results of this analysis underscore the impact that grants have on enrollment in higher education. Specifically, the TEXAS Grant program appears to be affecting decreasing enrollment at community colleges, which may signal a substitution effect where White students specifically appear to be using that increased stipend to attend general academic institutions. This type of trend is not present when the dependent variable is the percent of ethnic minority community college enrollment. In addition, the Pell Grant also indicates a relationship with enrollment behavior. Total enrollment at community colleges is decreasing when Pell Grants increase but the percent of ethnic minority community college enrollment increases as Pell Grants increase. This discrepancy reflects the fact that White students are using the increase to leave community colleges and attend general academic institutions. On the other hand, with less stringent criteria, the Pell Grant is increasing the percent of ethnic minority community college enrollment. There are reasons for these different outcomes, as discussed in this chapter; however, the major result is that both TEXAS and Pell grants impact enrollment behavior in Texas higher education.

In conclusion, a factor that is directly controlled by state and federal lawmakers can influence student participation rates in Texas higher education through adequate financial aid policy. The realization that certain grant types have an effect on enrollment behavior across ethnic groups in Texas provides a crucial opportunity for Texas' leaders. It is incumbent upon those elected to increase the participation of ethnic minority populations, which leaders have claimed to recruit. Need based grant opportunities are both a priority and a necessity to facilitate minority attendance in higher education.

CHAPTER VI

CONCLUSION

If in fact the United States' democratic system is to continue as envisioned by The Framers, states must never waiver on the fundamental principle of equal opportunity in education. This idea of providing equitable education is still threatened today throughout the system, but is most blatantly flawed as students seek higher education. Across the nation, state shares of higher education costs have transitioned to the student at an increasing rate. This trend has the potential to not only limit higher education enrollment numbers and leave behind students who are economically disadvantaged, but also impact this country's workforce.

Factors that Impact Higher Education

The Impact of Costs on Enrollment

In order to sustain this country's commitment to providing equal opportunity higher education, states have the obligation to commit to a policy that recognizes access and affordability. Heretofore, the philosophy of higher education finance and policy adopted by states has seen a shift from subsidies in order to provide a public good that allows for upward mobility, to a policy that has placed costs on the students reflecting more of a business model. It is apparent that as the free market model has allowed for unregulated tuition increases, the gap between those who can and cannot attend has at minimum remained the same. Various research has supported the theory that as costs

increase student enrollment decreases, particularly among minority students. On the other hand, adopting a tuition policy that provides access and maintains affordability for the public good likely increases student enrollment. Increased participation in higher education provides a more educated workforce and allows for a strong, growing economy. In Texas, it is estimated that for every dollar invested in higher education, the state received an additional \$1.13 in economic activity (Paulsen, 1998, p.479). Today's leaders can decide to maintain that promise of equal opportunity by investing in programs like higher education on the front end. If not, they gamble in paying for health care, criminal justice and welfare on the back end.

This study attempted to determine whether or not the rise in tuition rates, as a consequence of Texas' decision to implement tuition deregulation, was affecting student enrollment. Specifically, whether tuition deregulation was creating enrollment barriers in Texas' general academic institutions which caused an influx of students into community colleges was at issue. Although this theory appears to not be occurring in Texas at this time, this result, however, does not signify that a substitution effect will not arise in Texas if tuition rates continue to increase at such a dramatic rate over time. The limited span of time tuition deregulation has been enacted in Texas limits available data to determine if tuition rates have an effect on enrollment at community colleges. To conduct this study ten years post implementation of House Bill 3015 would likely provide a more accurate assessment of the impact tuition rate increases has on community college enrollment in Texas. Apart from the results of this research, the potential effects of the 2003 policy must continue to be examined in order to determine if

tuition deregulation is, in fact, widening the participation gaps among ethnic groups in higher education.

The Impact of Financial Aid on Enrollment

As a result of an analysis of the research, financial aid's impact on student enrollment in Texas became apparent. Prior research indicated that financial aid did provide affordability despite changes in tuition; however, to maintain the access, the increases in cost would have to be matched by corresponding increases in financial aid (Lenth, 1993; Seneca & Taussig, 1987; Wellman, 1999). This acknowledgement of how grants influence student enrollment was further supported in this research study.

Although not the initial reason for the research, the significance of the influence financial aid has on both total and the ratio of minority community college enrollment is evidenced in both the research and the findings of this study. As Dresch believed, students respond to tuition and financial aid differently (Heller, 1997; Leslie & Brinkman, 1987; Paulsen, 1998; St. John & Starkey, 1995). This research offers support to this theory because of the statistically significant relationship found between grants and enrollment, but no significance between cost and enrollment; evidence that students respond differently to set of prices and subsidies, and not solely net cost.

This research study found that increasing the average grant award increases higher education enrollment in Texas. More specifically, White students are taking the increased Pell Grant stipend and using it to leave community colleges to substitute their enrollment into general academic institutions. On the other hand, their minority peers are using the increased Pell Grant stipend to enroll at a greater rate in community colleges. The TEXAS Grant program also shows an impact, specifically with White students.

White students are taking advantage of the augmented grants at a significant rate and are using them to substitute their enrollment from a community college to a general academic institution.

Although speculative, these discrepancies are rooted in the different eligibility requirements of the grants. The Pell Grant program is a more flexible program because it is based on need and does not have a minimum enrollment requirement of nine credit hours or firm academic criteria like the TEXAS Grant (United States Department of Education, 2009). Under these requirements, 64% of Texas students enrolled in higher education are less than full time (Texas Guaranteed Student Loan Corporation, 2008, p.23). Consequently, Texas students are more dependent on federal aid now than in the 2005-2006 where federal allocations accounted for 84% of the financial aid (TGSLC, 2008, p.41).

The Impact of Inequity

The inconsistency of the results between White and minority groups' grants utilization is of concern. When all ethnic groups are equalized for income and academic achievement or determinants of college attendance, the educational expectations of minority students are, in fact, equal to or higher than that of their White peers (Behrman et al., 1992; Light & Strayer, 2002; Thomas, 1979). Therefore, this gap between ethnic groups in higher education enrollment is not due to a lack of expectation or aspiration. What this spotlights is inequity between academic achievement and income.

This outcome raises questions about the kindergarten through 12th grade (K-12) system in terms of overall preparedness and support for economically disadvantaged students and financial equity for their campuses by school districts. Furthermore, these

disadvantaged students are disproportionately represented by ethnic minorities (Texas Education Agency, personal communication, March 23, 2009). Ethnic minority students do not meet academic standards at the rate of their White peers, but the cycle must be broken (Texas Education Agency, 2008). To resolve what affects student achievement for ethnic minorities deserves additional research and is not within the scope of this study. However, minority students tend to face more adverse conditions in the formative years that might make for a more difficult pathway to higher education. The factors that do influence that road to success and that can be influenced by government leaders should be further analyzed. These students deserve academic support through acknowledgement, policy intervention and a general understanding by leaders of their diverse needs. More important, equitable funding to schools is essential to ensure good working conditions that recruit and retain the best teachers, which aid student success. Recognition and dialogue by lawmakers is necessary to accomplish the larger goal of closing the gaps in higher education.

It becomes apparent that with equalized income ethnic minority students enroll in higher education at the same or higher rates than their White peers. The causes of income inequity are infinite and beyond the scope of this research; however, further discussion regarding enrollment in the context of income inequity is warranted. Research indicates that ethnic minorities are overrepresented in the low to middle income brackets and, as such, in community colleges (Paulsen & St. John, 2002). Findings from this research study support that, and indicate that ethnic minority students are using their Pell Grant stipend to enroll in community colleges at an increasing rate. Therefore, as the grant stipend increases the overall cost to the student decreases and makes community

college enrollment even more affordable. Conversely, such a grant would likely not compensate for the higher costs of general academic institutions, thus leaving a substantial amount still incurred by the financially conscious student. This might explain why minorities are not using the increased grant to attend general academic institutions.

Using *Closing the Gaps* as a framework, it appears one way to increase participation by ethnic minorities in higher education in Texas is through grants that do not focus on academic achievement or hours taken, but are based on need like that of the Pell Grant. Additionally, further research might demonstrate that an even higher grant stipend may influence ethnic minority enrollment in general academic institutions because it would cover more costs. This hypothesis would be beneficial given that the lowest income group is now paying 55% of their income to attend public four-year institutions up from 39% just a decade ago, followed by the middle class paying a quarter of their income up from 18% (NCPPE, 2008, p.8). Ideally, with more academic and income equity, ethnic minority students would take their increased stipends and enter general academic institutions helping to close the educational attainment gap.

Tomorrow

The core of any higher education policy has always been and should remain based on commitment to equal access and affordability. In Texas, the shift of costs from the state to students through the deregulation of tuition negates this foundational belief. The adoption of this policy reflects a contradiction regarding Texas' recruitment of ethnic minorities in higher education in order to address *Closing the Gaps* (THECB, 2001). Whether the state is appropriately bearing its burden via reasonable tuition or adequate

grants is of concern, especially since the Texas State Legislature has been charged to make every effort to assure that these identified populations are supported.

Texas' higher education institutions are also responsible for this process. Some institutions grossly increased their tuition rates with blatant disregard for the repercussions on students. Additionally, institutions dramatically raised fees as an additional mechanism to raise revenue. As a result, student enrollment appears to accommodate the wealthy who can afford the increases and the poor who can receive the small amount of grants available. The remaining student population is left taking out loans in order to enroll, which leaves them graduating in debt (TGSLC, 2008, p.42). These institutions seem to operate, at times, as though they are private entities or greater than the government that is responsible for overseeing them or the taxpayers financing them. Lack of real oversight and strong accountability of expenditures by the state has allowed for such behavior to flourish.

Ideally, the community college system would be an alternative option for these students that are being priced out of four-year schools; a substitution effect. Thus far, more students are opting into two-year schools for postsecondary education due to multiple reasons including but not limited to demographic changes, family, employment, and low costs. Since community colleges are serving more ethnic minority students than general academic institutions, increases in tuition at two-year institutions would be equally as difficult to pay.

The community college system was envisioned years ago as part of Jacksonian Democracy; it was established as an alternative, low cost and open access option that provided a place for all citizens. This created increased opportunity and produced a more

educated citizenry. While community colleges in Texas are seeing an influx of students, state funding for these institutions is not keeping pace, and the burden of cost may be forced upon the very student it is seeking to serve. Eventually, one can imagine a scenario where tuition at community colleges increases to the point of impacting enrollment similar to the four-year institutions. In order to maintain low tuition, community colleges will have to cut services, classes, faculty, and staff in order to maintain lower costs. How then would they support a fast growth population? And if not, where do these students substitute their education?

The commitment to access and affordability can only be realized when the state accepts the burden of funding more of Texas higher education. An increase in direct institutional funding should only be available with the understanding that institutions will reign in their tuition and fee rates in exchange. Through subsidization they can regulate tuition by lowering rates or at the very least capping them in an honest manner. This commitment must be coupled with a sincere investment by the state into need based financial aid programs in order to increase participation by ethnic minority students. Thus far, grants and financial assistance have been underfunded in Texas as well as across the nation; states have failed to fulfill their pledge to such programs deemed 'high-tuition, high-aid'.

In 2006-2007 Texas spent the lowest amount in state grant aid of the five most populous states; spending just over one-third of what California spent (TGSLC, 2008, p.51). Although the inclination by states is to enact strict merit based grants, until there is academic equity across the K-12 pipeline, it is unreasonable to make this the only route for financial support in postsecondary education. To reiterate, the ethnic minority and

economically disadvantaged students Texas aims to recruit only have a statistically significant relationship with the need based Pell Grant and not with the TEXAS Grant, which incorporates academic and course hour stipulations.

Finally, the state must make funding higher education a priority and pick up a larger share of the cost. Not only do legislators need to address a more judicious tuition policy, but also they must fund financial aid programs in a sincere way by recognizing the changing population they are trying to attract into higher education. If tuition and fees continue to escalate, even the most well funded financial aid program will not provide relief to students seeking higher education because the costs to cover will be too high. Texas must prioritize funds to the fast growing community college systems that are seeing their enrollments rise at rapid rates. The purpose of this study was to determine if those factors that can be influenced by lawmakers are impacting enrollment behavior. Over time, if students were to choose to forgo a higher education because they were priced out due to high tuition and fee costs or debt to be incurred, the impact on the Texas workforce and consequently the economy would be significant. This outcome superimposed on the changing demographic in Texas, specifically the growing Hispanic population, would create a disproportionate situation between the educated and uneducated population.

It is incumbent upon lawmakers across the nation and in Texas to analyze a higher education system that was once designed to serve the few and the privileged. The inequity of wealth pervades the United States, and a policy like tuition deregulation facilitates the hardening of an approaching two class system that only further enhances that inequity. Certainly class warfare was not envisioned by The Framers who believed

an educated citizenry was necessary for a strong democracy. In a globalized world where an individual competes against the other 6.7 billion, it would seem to be in the best interest of a still sovereign superpower to invest funding in a system that provides for the highest education for all its citizens. Such a promise allows this country not only to remain competitive but it also to endure as the greatest nation who pledges to liberty and justice for all.

There is an urgent need for engagement and action by the lawmakers and policy leaders of Texas. The findings of this study demonstrate the statistically significant impact that need based Pell Grants have on increasing minority enrollment in community colleges in Texas. In addition, what appears to be a variant of the substitution effect shows that when the average TEXAS Grant or Pell Grant stipend increases, White students leave community colleges and use the respective grant to enroll in general academic institutions in Texas. It is with this knowledge that financial aid policy and funding for such programs move to the forefront of the debate that answers questions on how the state is to recruit students into higher education. Results from this study further reveal disparity between ethnic groups in Texas, and thus there is more to be desired. The disparate outcomes highlight the lingering gap between White and ethnic minority group enrollment patterns at specific types of higher education institutions when given identical grants. Moreover, as the total population grows, ethnic minority enrollment rates at community colleges in Texas are not keeping pace with their White peers. This is alarming for a state which is projected to see rapid growth most significantly in the Hispanic population. Lastly, although currently not supported by this study, it is necessary for research to continue to investigate the potential affects of tuition

deregulation on higher education enrollment in Texas. In a state that is experiencing an impressive demographic shift but lacks the same proportional growth in participation and educational attainment, it is crucial that the conversation does not end here. Texas leaders must commit to picking up more of the costs in order to ensure access and affordability for all Texans that seek higher education.

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