Revised 3/30/2005

Prepared for the CHERI Policy Research Conference
Assessing Public Higher Education in the 21st Century
May 22-23, 2005

# The Changing Accessibility, Affordability and Quality of Higher Education in Texas

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**Abstract:**

Recent changes in admissions criteria, tuition levels and costs have threatened the accessibility, affordability and quality of higher education in Texas. The end of affirmative action in Texas and the Texas percent plan reduced the accessibility of higher education for some students and raised the accessibility of higher education for others. During the 1990s, increases in tuition levels lowered the affordability of higher education for the average student. In recent years, the quality of higher education as measured by the share of tenured and tenure-track faculty at public universities in Texas has also steadily decreased.

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## I. Introduction

The purpose of this study is to determine whether recent changes in admissions criteria, tuition levels and costs have affected the accessibility, affordability and quality of higher education in Texas. During the 1990s, public colleges and public universities in Texas switched from a college admissions process that allowed for affirmative action to a percent plan.[1] The Texas percent plan guarantees students in the top ten percent of their high school class acceptance to any public college or public university in Texas. The switch from affirmative action to a percent plan may have adversely affected the accessibility of higher education for Hispanic students, black students and low-ranked students. On the surface, it also appears that the affordability of higher education has decreased due to large increases in the average tuition and fees listed for public universities in Texas. At the same time that higher education in Texas may have become less accessible and less affordable, it also appears that higher education in Texas may have decreased in quality. The share of tenured and tenure-track faculty at public universities in Texas has been decreasing steadily for the past few years.

The end of affirmative action and the institution of a percent plan affected the cultural accessibility of higher education and the geographic accessibility of higher education. Higher education is defined as being culturally accessible if students are encouraged to pursue higher education. The end of affirmative action in Texas decreased the cultural accessibility of higher education for some Hispanic and black students. However, the percent plan increased the cultural accessibility of higher education for students in the top ten percent of their high school class. Students who may not have

[1] Dickson (forthcoming) provides a brief timeline of events concerning the use of race in college admissions.

considered college previously are now being encouraged to apply and to attend college. Higher education is defined as being geographically accessible if students can obtain a high quality education locally. The end of affirmative action decreased the probability of acceptance to the state flagship universities for some Hispanic students and black students. The institution of the percent plan decreased the probability of acceptance to the state flagship universities for students outside of the top decile of their class. Therefore, the end of affirmative action and the institution of a percent plan reduced the geographic accessibility of a high quality education for some students.

The financial accessibility of higher education in Texas is defined by how affordable higher education is in Texas. During the 1990s, the average tuition and fees listed for public universities in Texas doubled in real terms. Two sets of analyses are conducted in order to assess whether the increases in tuition represent decreases in the affordability of higher education. First, the changes in listed tuition are compared to the changes in median family income in Texas. If tuition and fees increased faster than median family income, higher education in Texas may have become less affordable. Second, the amounts and types of financial aid students receive today are compared to the amounts and types of financial aid students received in the past.

The quality of higher education in Texas may have been affected by both the changes in college admissions and the changes in the finances of public universities. The changes in college admissions may have affected the quality of higher education in Texas because it affected who enrolls at the state flagships. Students are a quality input into higher education because of peer effects. The financial structure of public universities in Texas may have affected the quality of higher education because public universities may

have been under pressure to cut costs. In this study, I analyze the trends in the employment of tenured and tenure-track faculty to assess whether the quality of higher education in Texas has changed. Tenured faculty and tenure-track faculty constitute a quality input into higher education because faculty produce research and teach students.

The outline of the rest of this study is as follows. Part II discusses the effects of the changes in admissions criteria on the accessibility, affordability and quality of higher education. Part III analyzes whether the affordability of higher education in Texas has changed for the average student. Part IV considers several possible explanations for the rising tuition in Texas. Part V documents the trends in the employment of tenured and tenure-track faculty at public universities in Texas. Part VI concludes.

## II. Changes in admissions criteria

During the 1990s, public colleges and public universities in Texas changed their admissions policies from policies that may have allowed for affirmative action to a state admissions policy based on high school class rank. The 5th Circuit Court decision in *Hopwood v. University of Texas* in 1996 ended the use of race in college admissions decisions and financial aid decisions in Texas.[2] In the year following the *Hopwood* decision, minority applications, minority acceptance rates, and minority enrollment fell at the state flagship institutions.[3] The Texas state legislature passed a percent plan to help

[2] The ruling itself does not apply directly to financial aid decisions. However, the Texas state attorney general at the time interpreted the decision to apply to financial aid decisions and this led to the end of the use of race in financial aid decisions at public colleges and public universities in Texas.

[3] In this study as in others, minority will be used to denote only black students and Hispanic students. However, it is important to note that in Texas whites are not the majority (McMillion et. al 2005). Chapa and Lazaro (1998) document a 10 percent decline in the percent of minority applications sent to the University of Texas the year after the *Hopwood* decision. Card and Krueger (2004) found the admission

remedy the negative effects of the end of affirmative action. As previously mentioned, the percent plan guarantees students who graduate in the top ten percent of their high school class acceptance to any public college or public university in Texas. The purpose of the percent plan was to achieve racial diversity in higher education without using race.

The percent plan is an imperfect substitute for affirmative action. Long (2004a) demonstrates that the admission benefits for Hispanics or blacks under affirmative action are larger than the admission benefits for Hispanics or blacks under a percent plan. The smaller admission benefits from the percent plan can be understood by considering the effects of the policy for students outside of the top ten percent of their high school class. Hispanic students or black students outside of the top ten percent of their high school class are not helped by the percent plan though they may have been helped under affirmative action. In addition, the percent plan by itself does not compensate for the inability to use race as a factor in financial aid decisions. For the percent plan to effectively boost Hispanic enrollment or black enrollment, it is important that changes in financial aid policies accompany the changes in admissions.

After the passage of the percent plan, the University of Texas at Austin (UT-Austin) and Texas A&M at College Station (Texas A&M) instituted new financial aid programs. UT-Austin started the Longhorn Opportunity Scholars program in 1998. This program offers scholarships of $4,000 to high school graduates who graduate from

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rate for minority applicants to Texas A&M fell by 20 percent the year after the *Hopwood* decision. In the year following the *Hopwood* decision, the number of Hispanic freshmen at UT-Austin fell from 761 to 742 and from 717 to 556 at Texas A&M. At the same time, the number of black freshmen fell from 186 to 159 at UT-Austin and from 226 to 181 at Texas A&M. These numbers are provided by the Texas Higher Education Coordinating Board in their statistical reports. The statistical reports are available at: http://www.thecb.state.tx.us/cfbin/ArchFetch.cfm?DocID=0777&Format=HTML

qualifying high schools.[4] Texas A&M started the Century Scholar program in 1999. This program was modeled after the Longhorn Opportunity Scholar program. High schools that qualify for either program tend to enroll a larger proportion of Hispanic students and black students than high schools that do not qualify for the scholarship programs.[5] The Longhorn Opportunity Scholar Program and the Century Scholar Program increased the affordability of higher education for a select group of students.

The percent plan and the new financial aid programs had limited success in boosting Hispanic enrollment and black enrollment at the state flagships. Chart 1 shows the shares of first-time undergraduates by race enrolled at the two state flagships in 1995 and 2002. In 1995, race could be used in college admissions. In 2002, race could not be used in college admissions and students in the top ten percent of their high school class must be accepted to every public college and public university in Texas.

[Insert Chart 1 here]

By 2002, the share of Hispanic students and black students in the freshman class at UT-Austin slightly surpassed the pre-*Hopwood* levels and the share of Hispanic students and black students in the entering freshman class at Texas A&M were lower than the pre-*Hopwood* levels.

The percent plan and the financial aid initiatives at the state flagships appear to be a failure when we taken into account the increasing share of high school graduates in Texas who are black or Hispanic. In 1995, the percent of high school graduates who

[4] High schools qualify for the program if the average family income is less than $35,000 and less than 35% of the high school graduates sent applications to the University of Texas at Austin in the previous year. A list of the participating high schools is provided in Dickson (forthcoming).

[5] Tienda, M. and K. Lloyd provide information on the Longhorn Opportunity Scholars Program and the Century Scholar program. The document is available at: http://texastop10.princeton.edu/stats/los-cs.pdf

were Hispanic (black) was 29.2% (12%).[6] By 2002, the percent of high school graduates who were Hispanic (black) had increased to 33.1% (13.3%).[7] The data reveal an increasing gap between the share of enrollment at the state flagships who are minorities and the share of high school graduates who are minorities. Ideally, the share of minority students enrolled at the state flagships should reflect the racial composition of Texas high school graduates.

The increasing discrepancy between Hispanic enrollments and black enrollments at the state flagships and the racial composition of the state may be due to several factors. First, the increasing discrepancy may be due to a decrease in the percent of minority high school graduates applying to the state flagships. Tienda, Leicht, Sullivan, Maltese and Lloyd (2003) find that the percent of in-state students applying to the state flagships who were minorities fell after the *Hopwood* decision. Second, the increasing discrepancy may be a result of changes in admission probabilities or changes in enrollment probabilities. Tienda, Leicht, Sullivan, Maltese and Lloyd (2003) show slight decreases in admission probabilities and offsetting increases in enrollment probabilities for minority students at the state flagships. Finally, we should note that the enrollments at the state flagships are composed of in-state students and out-of-state students. In 2002, out-of-state students constituted 5.4% of enrollment at Texas A&M and out-of-state students constituted 9.8% of enrollment at UT-Austin.[8] If out-of-state students became predominately white in

[6] Texas Education Agency records information on the racial composition of high school graduates on their website. The Texas Education Agency's Pocket Edition 1994-1995 provided the racial composition of high school graduates in 1995.
[7] The Texas Education Agency's Pocket Edition 2001-2002 provides the racial composition of high school graduates.
[8] These statistics are from the Texas Higher Education Coordinating Board's 2002 statistical report. The statistical reports can be found at:
http://www.thecb.state.tx.us/cfbin/ArchFetch.cfm?DocID=0777&Format=HTML

recent years, then this may have skewed the share of minority enrollment at the state flagships.

The discrepancy between the enrollments of black students and Hispanic students and the racial composition of high school graduates is not unique to the state flagships. The racial composition of students enrolled in public universities in Texas is substantially different from the racial composition of high school graduates. Between 1995 and 2002, the share of black freshman enrolled at public universities in Texas increased from 9.1% to 10.6%. As previously mentioned, during the same time period the share of black high school graduates increased from 12% to 13.3%. The data reveal that the growth in the share of black students enrolled at public universities in Texas surpassed the growth in the share of black high school graduates. During the same time period, the share of Hispanic freshman enrolled at public universities in Texas increased from 18.1% to 20.4%. As previously mentioned, during the same time period the share of Hispanic high school graduates increased from 29.2% to 33.1%. The growth in Hispanic freshman at public universities is less than the growth in the share of Hispanic high school graduates.

The discrepancy between Hispanic enrollments in all of the public universities and the changing racial composition of the state may be due to application behavior, declining acceptance rates or declining enrollment rates. According to Tienda, Cortes, and Niu (2003) even among students who are guaranteed admission, Hispanic students are less likely to apply to four-year institutions. They found that only 71% of Hispanic students ranked in the top decile considered applying to four-year institutions and this can be compared to 80% of white students ranked in the top decile, 88% of Asian students ranked in the top decile and 79% of black students ranked in the top decile. In recent

years, there has been an enormous growth in the number of Texas high school graduates. Between 1995 and 2002, the number of Texas high school graduates increased from 163,191 to 215,316.[9] This represents an increase of almost 32% in seven years. This enormous growth in high school graduates and the resistance to increase capacity at the state flagships have decreased the probability of acceptance to the state flagships.[10] It is also possible that Hispanic students may be more likely to find the costs of attending higher education prohibitive and may be less likely to enroll in higher education. In addition, the recent end of affirmative action and the institution of a percent plan may have affected whether students applied, where students applied, and whether students attended public universities in Texas.

The effects of ending affirmative action and instituting a percent plan on the application behavior of all students are difficult to measure. Card & Krueger (2004) and Long (2004b) estimate the effects of ending affirmative action and instituting a percent plan on the application behavior of students. Both studies use data on students who have taken the SAT and information on where they had their scores sent. Both studies fail to consider the effects of the Texas percent plan on the number of applications students in the top ten percent sent to public colleges and the effects of the Texas percent plan on the types of students taking the SAT. Since students are already guaranteed acceptance to the public college or public university of their choice under the Texas percent plan, students in the top ten percent do not need to apply to "safety" schools. Neither study separates out the behavior of top ten percent students so they may not accurately present

[9] The Texas Education Agency Pocket Editions record information on the number of high school graduates in each year.
[10] Tienda, Leicht, Sullivan, Maltese and Lloyd (2003) state that the state flagship universities are reluctant to increase capacity.

the effects of ending affirmative action and instituting a percent plan. Dickson (forthcoming) demonstrates that there has been a significant decrease in the percent of black students and Hispanic students taking the SAT or the ACT. Given that the vast majority of four-year institutions require the SAT or the ACT, this suggests that there has been a decline in the percent of black high school graduates and Hispanic high school graduates applying to any four-year institution. However, this study and the previously mentioned studies are complicated by the fact that the affordability of higher education in Texas may have changed during this time period and by the fact that the population of Texas high school graduates have been changing.

The Texas percent plan offers a unique opportunity to study racial differences in enrollment behavior.[11] Since students are automatically admitted to all of the public universities in Texas, we can use enrollments of top ten percent students to create a revealed preference ranking of public universities in Texas.[12] Table 1 shows the ten most preferred public universities in Texas by race and ethnicity. A list of all of the public universities in Texas is provided in Appendix 1. The rankings are created using all of the available information for all of the years between 1998 and 2003. Complete rankings are available separately for each year from the author.[13]

[Insert Table 1 here]

[11] The Texas percent plan differs significantly from the California and Florida percent plans because students in the top ten percent of their high school class can choose where they wish to attend.

[12] I am using the same definition for revealed preference ranking as is available in Avery, Glickman, Hoxby and Metrick (2004). All of the students are admitted to any public university and I provide a ranking using only information from students who have chosen to attend a state university. I am unable to provide a ranking that incorporates the decision to enroll in schools outside of the state due to data limitations. However, it should be noted that the sample size used to create these rankings is 66,625 students. This is considerably larger than the 3,240 students that Avery et. al use to create a national ranking.

[13] The Texas Higher Education Coordinating Board collected data on students in the top ten percent of their high school class from Texas enrolled at each of the public universities.

The table reveals that more than half of the automatically accepted students who chose to enroll at a public university in Texas are enrolled at the state flagships. However, the preference rankings by race show dramatic differences in the share of each race enrolled at the state flagships. Approximately 70% of Asians in the top ten percent of their high school class who chose to attend a public university in Texas are enrolled at the state flagship universities. In comparison, approximately 31% of Hispanics in the top ten percent of their high school class who chose to attend a public university in Texas are enrolled at the state flagship universities. The comparable numbers for whites and blacks are 63.31% and 31.12% respectively.

The differences in the rankings of universities in Texas by race and ethnicity may be due to the quality of the universities, the costs of the universities, the location of the universities or possibly the racial composition of the universities. It is interesting to note that the universities that receive a large proportion of the top ten percent students who are minorities are universities that already enroll a large proportion of minorities. UT-El Paso and UT-San Antonio receive 9.35% and 8.32% respectively of the Hispanic top ten percent students who enroll in any public university in Texas. The undergraduate enrollment at UT-El Paso and UT-San Antonio in 1999 was 71.6% Hispanic and 46.1% Hispanic respectively. Two historically black universities are ranked numbers four and five by blacks. Prairie View University receives 10.04% of the black top ten percent students who enroll in a public university in Texas and this university's undergraduate enrollment was 92.5% black in 1999. Texas Southern University receives 7.32% of the black top ten percent students who enroll in a public university in Texas and this university's undergraduate enrollment was 88.4% black in 1999.

During the years the percent plan was in place (1998-2003), the percent of freshmen who were guaranteed acceptance to the state flagships and enrolled at the state flagships dramatically increased. The following chart shows the percent of freshmen who enrolled in each university who were in the top ten percent of their high school class.

[Insert Chart 2 here]

Between 1998 and 2003, the share of entering freshman at UT-Austin in the top ten percent of their high school class in Texas increased from 38% of the freshman class to 65% of the freshman class. At the same time, the share of entering freshmen at Texas A&M in the top ten percent of their high school class in Texas increased from 39% of the freshman class to 49% of the freshman class.

Parents, policymakers and the public have been concerned by the increase in the share of the entering freshman classes at the state flagships taken up by students who were guaranteed acceptance. The first concern is that the state flagships are now less accessible to students outside of the top decile of their high school class. The second concern is that some students who are admitted under the percent plan are not academically prepared to study at the state flagships. Recent research shows that students who were admitted under the percent plan have performed well at the state flagships.[14] The performance of the students in the top ten percent of their high school class may be partially due to investments made by the universities. UT-Austin started the Connexus program for Longhorn Opportunity Scholars. The program provides academic advisors for the students, free tutoring in several subjects and places students in smaller classes.

[14] Bucks (2004) analyzes the academic performance of whites and minorities at the state flagship institutions.

These types of initiatives may have helped to boost the performance of Longhorn Opportunity Scholars.

Instituting a percent plan changed the accessibility of public universities differentially according to high school class rank. Students in the top ten percent of their high school class have witnessed an increase in the geographic accessibility of high quality institutions and have witnessed an increase in the cultural accessibility of high quality institutions. The students are guaranteed acceptance to the best universities in the state and are encouraged to attend these universities. Students in the top ten percent from schools that qualify for the Longhorn Opportunity Scholar Program or the Century Scholar Program also witnessed a large increase in the affordability of higher education. Students outside the top ten percent of their high school class have witnessed a decrease in the geographic accessibility of high quality institutions and possibly a decrease in the cultural accessibility of high quality institutions. The increasing population has also reduced the geographic accessibility of higher education because of the reluctance to increase capacity at the state flagships.

The percent plan may inadvertently affect the quality of higher education in Texas. The percent plan guarantees students acceptance to college if they graduate in the top ten percent of their high school class without regard to any other possible college admissions criteria. This lowers the incentive for high school students to improve their performance on other types of college admissions criteria. It is possible that students enrolled in high schools where high school class rank is computed without regard to class difficulty take easier classes to promote their rank. This may cause students to be less prepared than they would be if college admissions were based on multiple criteria.

Students who are guaranteed acceptance may also be less likely to invest time in studying for the SAT or the ACT. In addition, students who are guaranteed acceptance may be less likely to re-take the SAT or the ACT to raise their score. Therefore, the percent plan may reduce the average SAT or ACT scores at the state universities compared to what they would be if students did not know they were guaranteed acceptance.

## III. Changes in the affordability of higher education in Texas

The affordability of higher education is dictated by the listed tuition and fees, the amounts and types of financial aid available to students, and the family income available for students. In the 1990s, the average listed tuition and fees for public universities in Texas increased faster than the national average. At the same time, the amounts and types of financial aid available to students changed due to changes in federal laws, changes in state aid and changes in institutional aid. In this section of the study, I examine the effects of rising tuition on affordability.

In the past decade, the average tuition and fees in Texas increased faster than the national average but the actual level of tuition and fees in Texas is still slightly below the national average. Chart 3 shows the time trend in tuition and fees for universities, community colleges and technical colleges in Texas.

[Insert Chart 3 here]

The chart reveals that the average tuition and fees listed for an in-state student at a public university in Texas doubled (adjusted for inflation) between 1990 and 2000. The chart also reveals that the average tuition levels for community colleges and technical colleges

have also been increasing but at a slower rate than the tuition levels at public universities. The real tuition levels at community colleges increased by 32 percent between 1990 and 2000.

The listed tuition and fees at public universities in Texas have been increasing faster than the median family income in Texas. The average tuition for a full-time equivalent student at a doctoral research university in Texas increased from 3.4% of median family income in 1990 to 7.5% of median family income in 2000.[15] At the same time, average tuition for a full-time equivalent student at a comprehensive university in Texas increased from 2.6% of median family income in 1990 to 4.8% of median family income in 2000.[16] These statistics suggest that higher education is becoming less affordable for Texas students.

Students who can not afford the increases in tuition at public universities in Texas may be receiving financial aid in the form of grants, scholarships, loans, or work-study programs. The number of students receiving need-based financial aid increased from 154,598 in 1996 which constituted 38.9% of total enrollment to 189,184 in 2002 which constituted 41.5% of total enrollment.[17] During this same time period, the average amount of money students received in need-based financial aid also increased by $1,000 (adjusted for inflation) between 1996 and 2002.[18] The average amounts and types of financial aid received by students differ by the race and ethnicity of the students. In

[15] This information is calculated from US Census data and institutional financial reports. Charges for a full-time equivalent student were calculated by dividing total tuition and fees collected by full-time student equivalents. The Texas Higher Education Coordinating Board presented these results in its March 7,2003 report on Financing Higher Education.
[16] ibid
[17] This statistic is available by looking at the 2003 and 1996 statistical reports.
[18] The Texas Higher Education Coordinating Board records information on the number and average amounts of financial aid received at all of the public universities in the yearly statistical reports. These reports are available at: http://www.thecb.state.tx.us/cfbin/ArchFetch.cfm?DocID=0777&Format=HTML

2002, 66% of black students enrolled received need-based financial aid and 58% of Hispanic students enrolled received need-based financial aid. In 2002, 36% of white students enrolled received need-based financial aid and 41% of Asian students enrolled received need-based financial aid. Most of the financial aid received by students in Texas is from the federal government (83%).[19]

The type of financial aid a student receives matters to both the student and the state. Students prefer scholarships and grants to loans or work-study programs. Scholarships and grants do not need to be repaid. Scholarships are merit-based and grants are need-based. Loans are used to transfer the costs of the education to the student rather than it being a burden for the parents to pay. In the past few years, the average amount of financial aid students receive in the form of loans has increased. McMillion et. al (2005) find that the median borrower at public universities in Texas in 2002 borrowed $13,621 compared to $5250 the median borrower at public universities in Texas in 1992. The increasing loan burden reinforces the idea that higher education in Texas has become less affordable.

The loan burden for students has increased due to changes in the eligibility for loans, decreases in family income and due to low amounts of grant aid. The 1992 Reauthorization of Higher Education Act changed the federal financial aid system.[20] Two of the changes in the federal financial aid policy can help to explain the increase in the median borrower's indebtedness. First, the 1992 Reauthorization of Higher Education Act increased the amount of money that could be borrowed through the Stafford loan program. Second, the 1992 Reauthorization of Higher Education Act made

[19] McMillion et. al (2005)
[20] A discussion of the Reauthorization of the Higher Education Act is provided in the NCES document "Paying for College: Changes between 1990 and 2000 for Full-Time Dependent Undergraduates."

unsubsidized loans available to students. Between 2002 and 2003, the median family income in Texas declined by $1,600. This decrease in family income has made a college education less affordable. While the amount of grant aid available to Texas students has increased recently, the amount of grant aid in Texas is by far the lowest in the six largest states.[21]

The affordability of higher education changes when we consider education to be an investment good rather than a consumption good. When we consider higher education to be a consumption good, the tuition and fees should be compared to the average family income as previously discussed. However, higher education is an investment good. Therefore, we should compare the costs of higher education to the expected returns from higher education. The expected returns from higher education are large and appear to be increasing. Carnevale and Desrochers (2003) estimate the return to a college education to be approximately 40% higher to the return of obtaining a high school education when controlling for individual characteristics. Day and Newburger (2002) estimate that over the course of a lifetime college graduates will earn 2.1 million dollars and high school graduates will only earn 1.2 million dollars. When taking into account the eventual payoff to earning a college degree, a college education appears to be very affordable.

## IV. Why has tuition increased in Texas?

The rising tuition in Texas is part of a national trend. The average tuition charged by public universities for an in-state student increased by eighty percent between 1988

[21] McMillion et. al (2005)

and 1998.[22] Mumper (2001) discusses four possible explanations for the rising tuition at public universities in the country: decreases in state appropriations, increases in spending on Medicaid and prisons, increases in the costs of quality inputs, and colleges spending money irresponsibly. McPherson, Schapiro and Winston (1989) suggest that universities may be raising tuition because they know that students will pay for the increase in tuition with federal financial aid.

The increasing tuition levels in Texas do not appear to be directly related to decreases in state appropriations. In the past 15 years, the amount of state appropriations (adjusted for inflation) has been steadily increasing. Chart 4 shows the trends in state appropriations per full-time equivalent (FTE) student for all public universities in Texas.

[Insert Chart 4 here]

The chart shows that in the mid 1980s state appropriations per full-time equivalent (FTE) student at public universities in Texas fell by 22 percent in real terms. Since 1985, state appropriations in Texas have been increasing in real terms. However, the real amount of state appropriations given to public universities in Texas today is lower than the real amount of state appropriations given to public universities in 1985.

In the past twenty years, public universities in Texas increased expenditures. The size of the increase in expenditures depends on the institution. The following chart shows the trend in total expenditures spent at five public universities in Texas.

[Insert Chart 5 here]

The data reveals that the increases in total expenditures have been much larger at Texas A&M and the UT-Austin then at the remaining universities in Texas. Total expenditures

[22] Mumper (2001) documents the increases in tuition at public universities. Ehrenberg (2000) documents some of the trends in tuition at the selective private colleges in the United States and discusses some possible explanations for the increasing tuition levels.

at the UT-Austin more than doubled in the past twenty years from almost $291 million in 1980 to $597 million in 2001 (reported in 1980 dollars). Texas A&M also witnessed a very large increase in total expenditures from $296 million in 1980 to $531 million in 2001 (reported in 1980 dollars). The increase in total expenditures at the University of Houston increased from $131 million to $210 million. However, this constitutes a 60% increase in total expenditures at the University of Houston.

The increase in expenditures may be partially due to the increasing prices of goods bought by higher education institutions. Each year, the Research Associates of Washington calculates the Higher Education Price Index (HEPI). The HEPI calculates the increases in the prices of goods that higher education institutions purchase. Between 1961 and 1998, the HEPI increased by 0.8 percentage points more per year than the Consumer Price Index (CPI).[23] Increases in the prices of inputs can partially explain the increases in total expenditures.

The level of expenditures at UT-Austin and Texas A&M greatly surpass the expenditures made at any other university in Texas. In order to examine why expenditures have been increasing at public universities in Texas, I examine the changes in the expenditures on research, instruction and financial aid at Texas A&M and the UT-Austin between 1980 and 2000. The following chart shows the expenditures for each university in each year. All of the categories taken together add up to total expenditures at each university.

[Insert Chart 6 here]

[23] Inflation Measures for Schools, Colleges and Libraries: 1998 Update (Washington, D.C.: Research Associates of Washington, 1998)

In the past twenty years, expenditures on instruction, research, institutional scholarships and student services have increased at these two universities. In addition, all other types of expenditures have also increased. The expenditures on instruction, research, and institutional scholarships make up more than half of total expenditures at each university in each year. The fastest growing type of expenditure is expenditures on financial aid. The share of total expenditures spent on financial aid at UT-Austin increased from 2.6% to 7.6% between 1980 and 2000. The share of total expenditures on financial aid at Texas A&M increased from 1.8% to 6.0% between 1980 and 2000.

The increases in expenditures on instruction can account for almost 36% of the increase in expenditures at Texas A&M and for approximately 19% of the growth in total expenditures at UT-Austin.[24] Texas A&M increased expenditures on instruction by almost $100 million. At UT-Austin, expenditures increased on instruction by approximately $58 million. The increases in expenditures on instruction may be due to increases in the wage paid to faculty and / or due to increases in the amount of faculty at each university.

In Texas, the average salaries paid to tenured faculty, tenure-track faculty, and non tenure-track faculty have been steadily increasing in real terms for the past 8 years. The following chart shows the trend in average salaries paid to faculty employed by any public university in Texas.

[Insert Chart 7 here]

Between 1996 and 2003, the average salary paid to full professors in Texas increased from $65,587 dollars to $73,141 (in 1996 dollars). This represents an increase of 11.5%

[24] Clotfelter (1996) and Ehrenberg (2004b) point out that the majority of the increases in expenditures can not

over an 8 year period. Average salaries increased throughout the period of 1996-2002 and decreased slightly in 2003.

The average salary paid to a professor in Texas is significantly lower than the average salary paid to professors at private institutions. The average salary paid by universities in Texas may be lower than the salaries paid by private universities for two different reasons. The first reason is that the faculty at private universities may be of higher quality and therefore command higher salaries due to higher productivity. The second reason is that private universities may be able to afford to pay professors of the same quality more. A full professor's salary at the University of Texas at Austin in the 2000-2001 school year was $94,286. For comparison, a full professor's salary at Princeton was $125,700 in the 2000-2001 school year.[25] The highest paying public university in Texas pays 75% of the average salary of a professor at Princeton. The average professor salary paid by public universities in Texas in the same year was $77,653. This represents only 61.8% of the average salary of a professor at Princeton.

Faculty salaries have been increasing faster at private institutions than at public institutions. Ehrenberg (2003a) calculates that the ratio of average salaries of full professors in public doctoral level institutions to the average salaries of full professors in private doctoral level institutions fell from about 0.91 in 1978-79 to 0.79 in 1993-1994. The declining average faculty salary at public universities has led to the possible concern that public universities will not be able to retain high-quality faculty. Nagowski (2004) investigates the relationship of average salaries and the turnover of associate professors and finds that institutions with higher average salaries maintain lower faculty turnover rates.

[25] Ehrenberg (2003b)

## V. Trends in the employment of tenured and tenure-track faculty in Texas

Public universities in Texas have witnessed a decline in the fraction of tenured faculty. This may be a result of the average salaries at public universities in Texas being lower than the average salaries at private universities. Professors may be choosing to seek out higher paid employment. However, public universities could also be reducing the fraction of tenured faculty to reduce costs. In this section, I do not distinguish between these two forces.[26] On average the share of tenured faculty has fallen by 4 percentage points. At the same time, the share of non-tenure track faculty has increased by 3 percentage points.

As a result of the decreasing share of tenured and tenure-track faculty, the fraction of semester credit hours taught by tenured faculty has declined in recent years. The following bar graph shows the trends in the share of semester credit hours taught by tenured, tenure-track and non-tenured faculty at all of the public universities in Texas.

[Insert Chart 8 here]

The share of semester credit hours taught by tenured faculty has fallen from 43% of total semester credit hours to 37% of total semester credit hours. As a result, the shares of semester credit hours taught by tenure-track faculty and by non-tenure track faculty have increased. The reduction in the teaching loads of tenured faculty appears to be concentrated at the undergraduate level. During the past six years, the share of

[26] Ehrenberg and Zhang (2004a) estimate demand equations for faculty members and show how the demand for faculty is affected by the average salaries of different types of faculty members.

undergraduate credit hours taught by tenured faculty decreased by almost 5 percentage points.

## VI. Conclusion

Higher education in Texas has faced several different challenges. In Texas, higher education has had to attempt to help a diverse population without the use of race as a criterion in admissions or as a factor in financial aid decisions. In addition, higher education institutions had to accept students in the top ten percent of their high school class whether or not the students were prepared for a college education. In addition, higher education in Texas has been challenged with increasing costs. Higher education in Texas has dealt with these challenges with some success and with some failure.

The accessibility of higher education in Texas changed differentially for students of different races and ethnicities as well as for students of different high school class ranks. The end of affirmative action reduced the cultural accessibility of higher education for minority students and reduced the geographic accessibility of a high quality education. It reduced the geographic accessibility of a high quality education because the probability of acceptance for minority students to the state flagship institutions fell. The percent plan and population growth also reduced the accessibility of the state flagships for students outside of the top decile. Meanwhile, the percent plan increased the accessibility of the state flagships for students in the top ten percent of their high school class. For some of the most disadvantaged students from the poorest high schools in the state, the accessibility and affordability of the state flagships greatly increased. The

Texas percent plan guaranteed access to the state flagships for these students and the state flagship universities offered large amounts of financial aid to these students.

The affordability of college education in Texas for the average student appears to have decreased. The rising costs and the increased expenditures made by public universities in the state led to increasing tuition and fee levels. The tuition and fees levels increased faster than the national average tuition and fee levels, faster than average price levels and faster than the median family income in Texas. As a result of these increases, more students are receiving need-based financial aid and more students are borrowing more money in the form of loans.

The changes in admissions criteria and the changes in the finances of higher education in Texas may have adversely affected the quality of higher education in Texas. The change to a statewide policy based on one admissions criterion distorts the incentives for students. Students who are enrolled at the most competitive high schools in the state may prefer to be enrolled at lower quality high schools. At high schools where class rank is not based on the difficulty of classes undertaken, students may choose to take easier classes. This reduces the quality of the student. Students who know they will be automatically accepted may be less likely to study for the SAT or the ACT and this may lower the average scores for the entering freshman. Since this is a criterion used by US News & World Report in their rankings of universities, it is possible that these decreased incentives may slightly reduce the ranking of the public universities in Texas. In recent years, it also appears that the quality of education as measured by the percent of faculty that are tenured and tenure-track has declined at public universities in Texas. There has been a corresponding decline in the share of undergraduate semester credit hours taught

by tenured and tenure-track faculty and this may have adversely impacted the quality of the universities as perceived by the students.

The current research also reveals some troubling facts. First, not all students who are guaranteed acceptance to college appear to apply to college. This may be due to preferences but if it is due to the lack of affordability of college then this represents a problem. Another troubling fact is that minorities who are guaranteed acceptance to the state flagships are less likely to enroll then non-minorities who are guaranteed acceptance to the state flagships. This may be due to student preferences but if it is due to discouragement and / or the increasing cost of a higher education then this constitutes another problem that needs to be remedied. Finally, recent evidence suggests that a lower percentage of high school graduates in Texas are applying to any four-year institution.[27]

[27] Dickson (Forthcoming)

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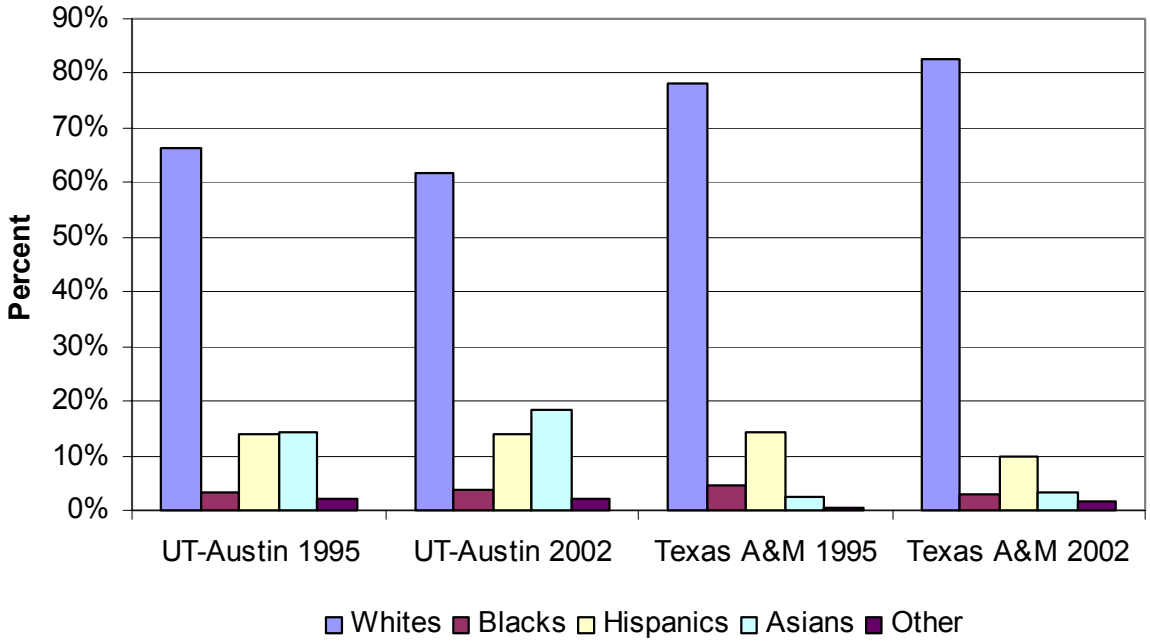
**Appendix 1: List of public higher education institutions in Texas**

***Public universities in Texas***

The University of Texas at Arlington
The University of Texas at Austin
The University of Texas at Dallas
The University of Texas at El Paso
The University of Texas – Pan American
The University of Texas at Brownsville
The University of Texas of the Permian Basin
The University of Texas at San Antonio
The University of Texas at Tyler
Texas A&M University
Texas A&M University at Galveston
Prairie View A&M University
Tarleton State University
Texas A&M University – Commerce
Texas A&M University – Corpus Christi
Texas A&M University – Kingsville
Texas A&M International University
Texas A&M University – Texarkana
West Texas A&M University
University of Houston
University of Houston – Clear Lake
University of Houston – Downtown
University of Houston – Victoria
Midwestern State University
University of North Texas
Stephen F. Austin State University
Texas Southern University
Texas Tech University
Texas Woman's University
Angelo State University
Lamar University
Sam Houston State University
Texas State University – San Marcos (used to be called Southwest Texas University)
Sul Ross State University
Sul Ross State University Rio Grande College

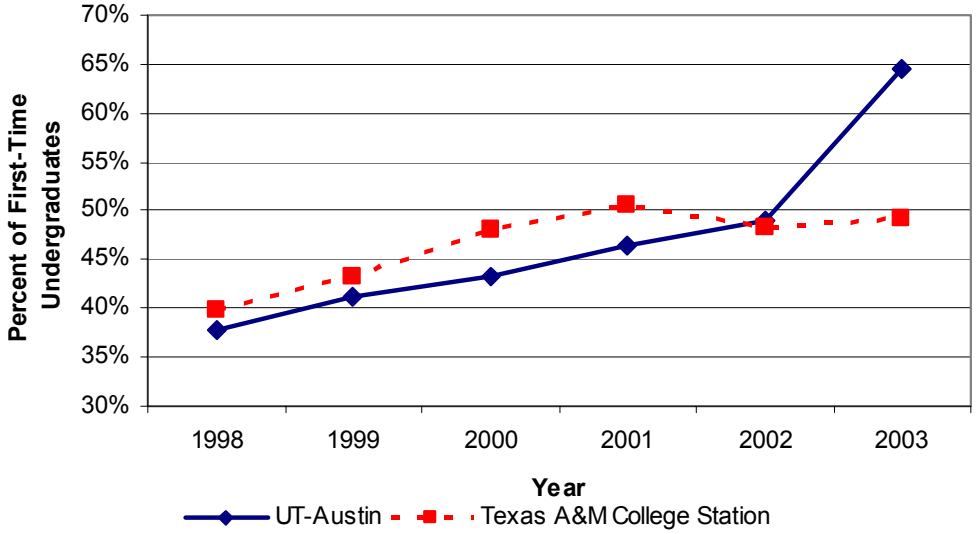
**Chart 1: First-Time Undergraduates at the State Flagships By Race and Ethnicity**



## Table 1: Revealed Preference Rankings by Race and Ethnicity

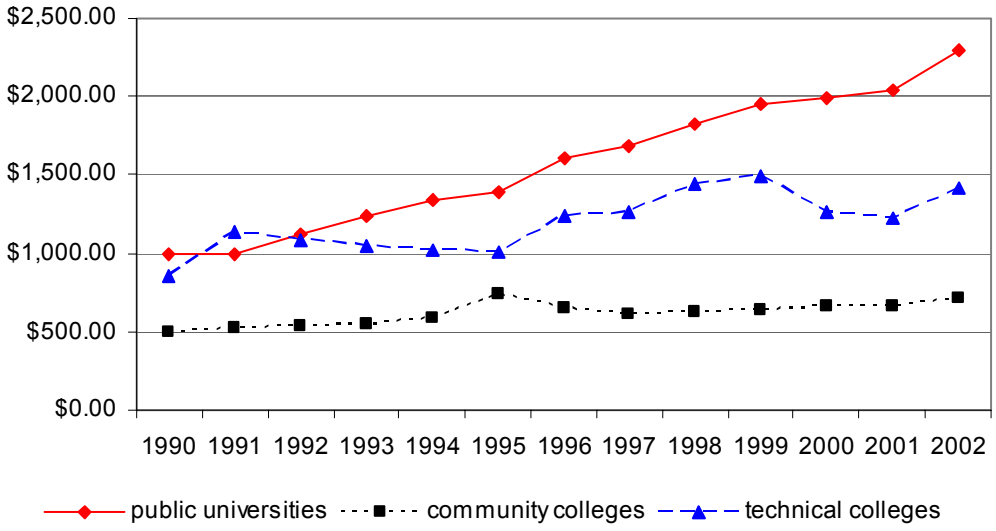
| Total Ranking | | White Ranking | | Hispanic Ranking | | Black Ranking | | Asian Ranking | |
|---|---|---|---|---|---|---|---|---|---|
| University | Share | University | Share | University | Share | University | Share | University | Share |
| UT - Austin | 30.41% | Texas A&M | 36.19% | UT - Austin | 29.49% | UT - Austin | 20.43% | UT - Austin | 60.16% |
| Texas A&M | 28.24% | UT – Austin | 27.12% | Texas A&M | 16.29% | U of Houston | 13.25% | U of Houston | 13.08% |
| Texas Tech | 6.87% | Texas Tech | 9.24% | UT - El Paso | 9.35% | Texas A&M | 10.69% | Texas A&M | 9.97% |
| U of Houston | 5.18% | University of North Texas | 4.16% | UT - San Antonio | 8.32% | Prarie View A&M | 10.04% | UT - Arlington | 5.68% |
| University of North Texas | 3.68% | Stephen F. Austin | 2.80% | U of Houston | 7.50% | Texas Southern | 7.32% | UT - Dallas | 3.18% |
| UT - Arlington | 2.86% | Texas State | 2.61% | Texas State | 3.84% | University of North Texas | 6.89% | University of North Texas | 1.59% |
| Texas State | 2.65% | U of Houston | 2.34% | Texas Tech | 3.22% | UT - Arlington | 5.25% | Texas Tech | 1.45% |
| UT - San Antonio | 2.54% | UT – Arlington | 2.26% | Texas A&M - Kingsville | 3.00% | Stephen F. Austin | 5.02% | UT - San Antonio | 1.22% |
| Stephen F. Austin | 2.34% | UT – Dallas | 1.96% | Texas A&M International | 2.72% | Sam Houston State | 3.35% | Lamar University | 0.84% |
| UT - El Paso | 1.98% | Sam Houston State | 1.42% | Texas A&M - Corpus Christi | 2.66% | Texas State | 3.33% | Stephen F. Austin | 0.43% |
| N = 66625 | | N = 42766 | | N=12284 | | N = 4264 | | N = 6782 | |

## Chart 2: The percent of entering freshmen who graduated in the top ten percent of their high school class



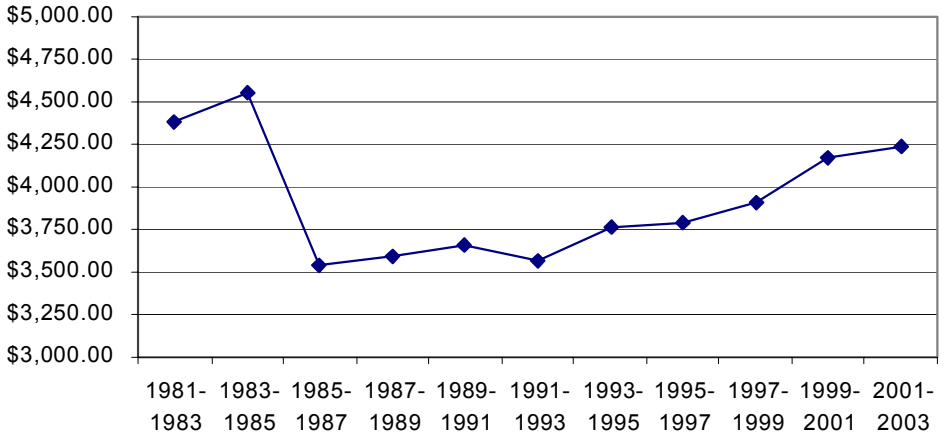

Source: The Texas Higher Education Coordinating Board is keeping a record of the number of students in the top ten percent of their high school class in Texas who apply to and attend public universities in Texas. This information is available for all universities in the First-Time Undergraduate Applicant, Acceptance and Enrollment Information Reports produced by the Texas Higher Education Coordinating Board.

## Chart 3: Average Tuition and Fees for Public Higher Education Institutions in Texas



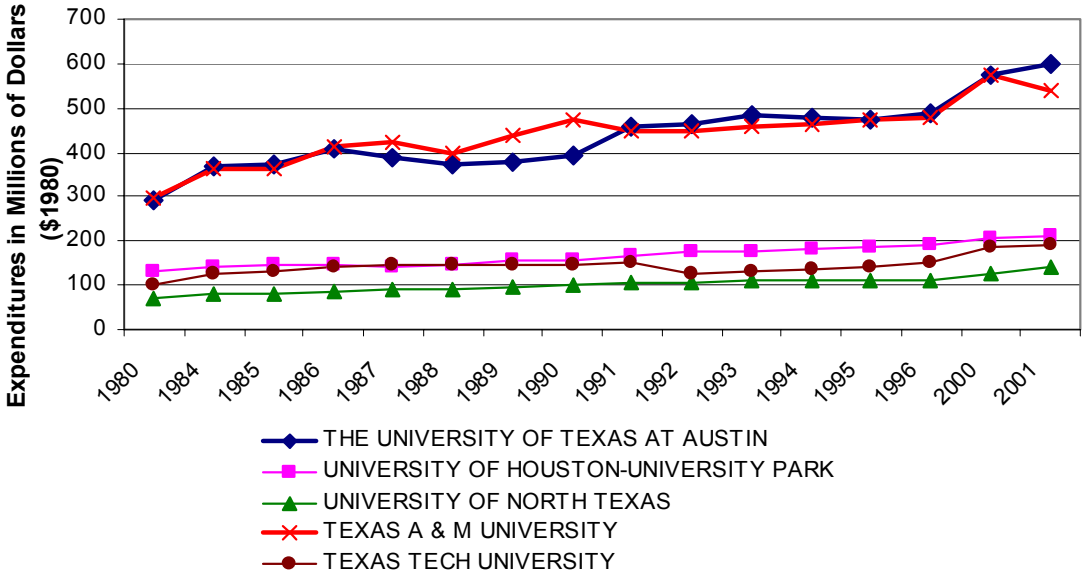

Notes: The average tuition levels are deflated using the Consumer Price Index and the amounts listed are in 1990 dollars. The tuition levels are for in-state residents and can be found in the College Student Budgets produced annually by the Texas Higher Education Coordinating Board.

## Chart 4: State appropriations per FTE student at public universities in Texas



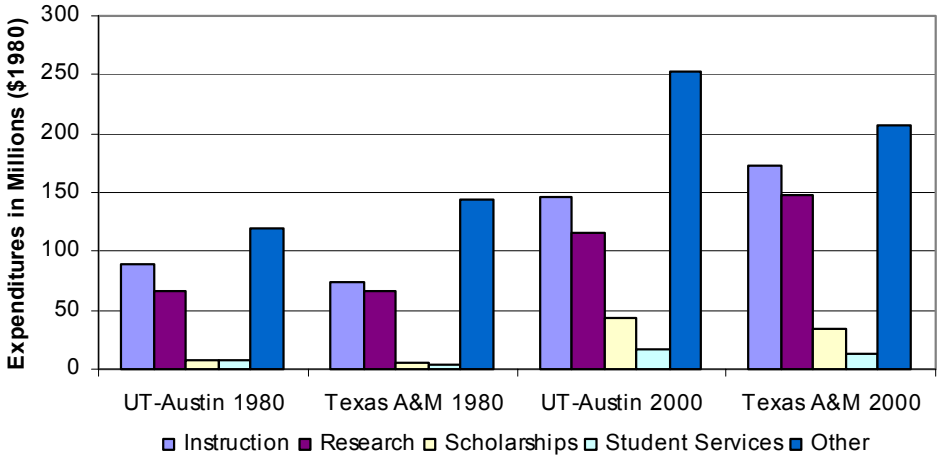

Notes: The state appropriations are deflated using the consumer price index (CPI) for all goods and all dollar amounts shown are in 1990 dollars. State appropriations are reported per biennium because the Texas state legislature meets once every two years.

## Chart 5: Total Expenditures Adjusted for Inflation



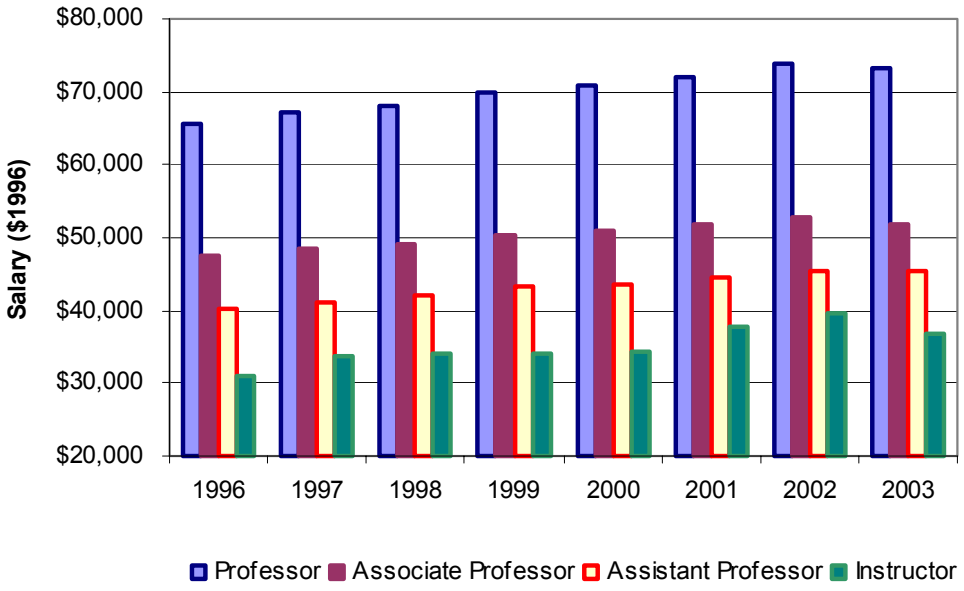

Source: Integrated Postsecondary Education Data System Peers Analysis System records information on the total current expenditures spent by universities around the country.

## Chart 6: Expenditures by Category



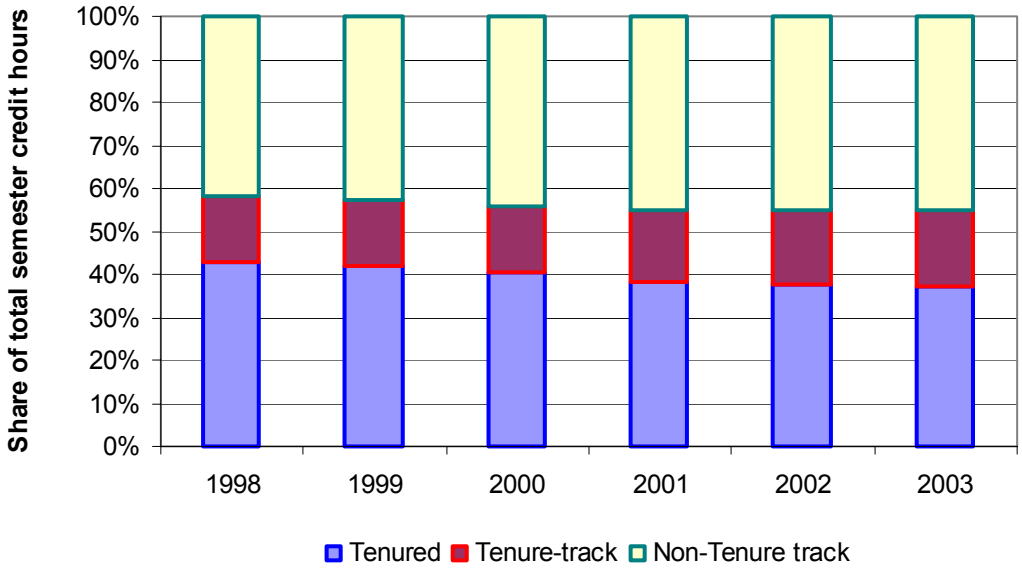

Source: Integrated Postsecondary Education Data System contains information on the types of expenditures made by universities around the country. The expenditures are deflated using the Consumer Price Index and are presented in 1980 dollars. The category other types of expenditures includes expenditures on building maintenance, libraries, academic support and institutional support.

## Chart 7: Average Salaries for Faculty at Public Universities in Texas




Notes: The data comes from the statistical reports produced each year by the Texas Higher Education Coordinating Board. The weighted average salaries presented are deflated using the CPI for all goods and are presented in 1996 dollars. The year 1996 refers to the 1996-1997 school year.

## Chart 8: Share of semester credit hours by faculty type




Source: The Texas Higher Education Coordinating Board records information on the semester credit hours taught by tenure status.