The ABCD's of Texas Education: Assessing the Benefits and Costs of Reducing the Dropout Rate

Capstone Team

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Executive Summary

The dropout rate can be calculated in numerous different ways, causing confusion among policy makers and analysts. For example, according to the plaintiffs in recent school finance litigation in Texas, "more than half of the Hispanic ninth-graders and approximately 46 percent of the African-American ninth-graders leave the system before they reach the twelfth grade" (Neeley v. West Orange-Cove Consolidated I.S.D., 2005). However, according to the Texas Education Agency, the annual dropout rate in Texas is less than four percent for all students, and less than six percent for Hispanic and African American students. Meanwhile, the National Center for Education Statistics (NCES) estimated that averaged freshman graduation rate (AFGR) for Texas was above the national average at approximately 76.6 percent for the 2003-04 school year (Laird et al. 2007), but average freshman graduation rates were below the national average in El Paso (60.5 percent), Austin (58.2 percent), Fort Worth (55.5 percent), Houston (54.6 percent), San Antonio (51.9 percent), and Dallas (44.4 percent) (Swanson 2008).

A high dropout rate could potentially have significant and long-term effects on the economic well being of the state and its ability to address public needs. Each year, the federal Congress and state legislatures spend millions of dollars trying to correct the perceived dropout problem.

Our client, the United Ways of Texas, has a strong interest in education and its impact on the future of the state. For several years this organization has promoted policy-driven solutions in the area of education as a part of a larger initiative. The United Ways of Texas asked us, the research team, to investigate and provide results and recommendations concerning the dropout rate and its impact within the state. We were provided with an outline of the necessary information that needed to be analyzed to assess the dropout problem in Texas.

1. Identify how to best measure the dropout rate
2. Quantify the dropout rate for the state
3. Estimate the dropout rate's economic impact on the state of Texas
4. Review available research regarding dropout prevention programs in order to identify best practices

In the first phase, we provide an analysis of the high school dropout rate in Texas. This analysis examines how the term *dropout* and corresponding indicators are defined, and the different theoretical ways in which dropout rates are calculated. The definition of *a dropout* is the basic concept on which all dropout rates are based. However, even this central definition is not agreed upon universally. Texas currently uses the definition provided by The National Center for Education Statistics (NCES). NCES defines *a dropout* as, "a student who is enrolled in public school in Grades 7-12, does not return to public school the following fall, is not expelled, and does not graduate, receive a GED, continue school outside the public school system, begin college, or die" (Texas Education Agency, 2008).

Using this definition, there are three main ways to calculate a dropout rate. All the rates have their pros and cons, depending on the situation in which they are being used. However, problems arise when the wrong rate is used to describe the wrong situation. For this reason, it is important to understand the differences in the rates, the definition of each, how they should be

used, and the advantages and disadvantages associated with each one. The chart below describes the different types of rates, how they are calculated, and their relative values.

Table 1: Rate Comparison

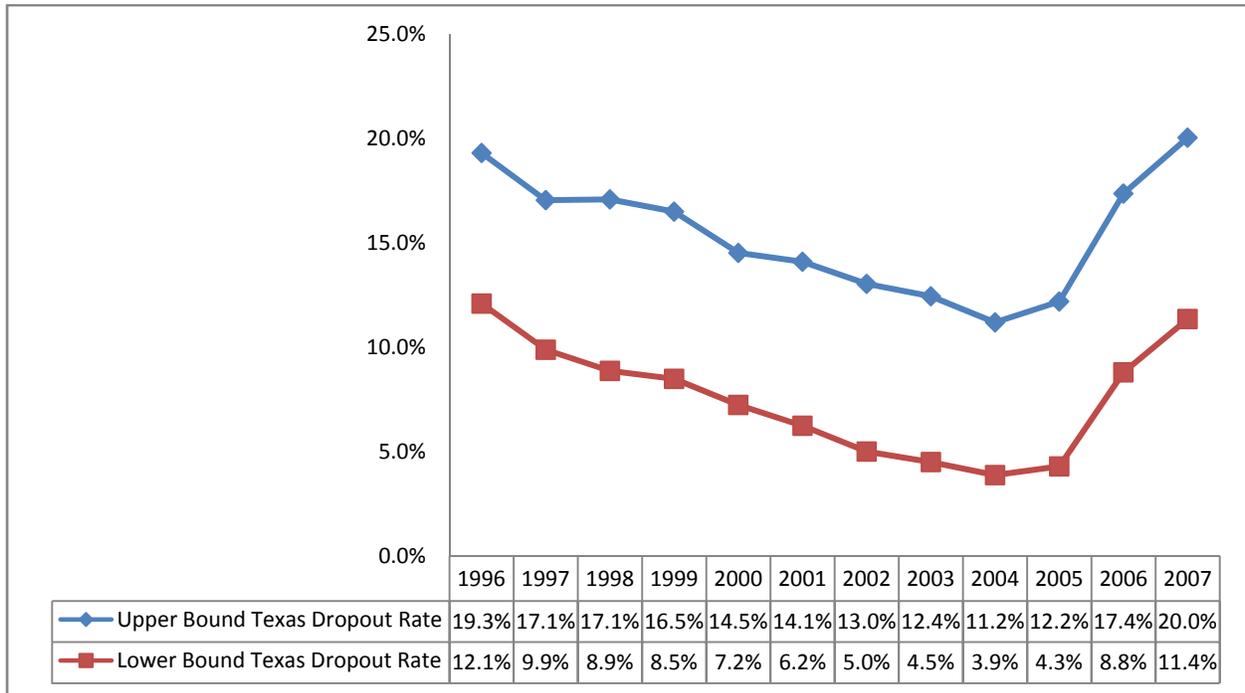|	Event Dropout Rate	Status Rates	Averaged Freshman Rate
Numerator	Total dropped out during one year	Total # of dropouts	# of graduates in year 5
Denominator	Total students enrolled in one year	Total students enrolled	Average of years 1, 2 and 3
Relative Value	Yields smallest rate	Yields largest rate	Yields a large rate
Data Used	Yearly dropout rate of students (percentage)	CPS & Census Longitudinal student-level data	Percent of freshman class

A longitudinal status rate is the most appropriate for determining the economic impact because it uses four year, longitudinal data. An event dropout rate cannot be used to calculate the economic impact of a dropout because this rate only captures dropouts for one year, and misses those within a cohort who previously dropped out. The averaged freshman graduation rate is typically used to estimate the dropout rate when longitudinal data is not available, and consequently the average freshmen dropout rate is not as accurate as the longitudinal status dropout rate.

In phase two, the team used state data within the constraints of availability, and determined a range of dropouts within the state, depicting the dropout conditions in Texas. The team then provided a descriptive analysis of the Texas high school dropout rate, based on indicators suggested in the literature, such as region, school district, and demographic characteristics. Wherever possible we analyzed the data at the state and school district levels, as well as for Texas House and Senate districts. (The Texas House and Senate district analyses are located in the appendices accompanying this report.)

The team looked at the dropout rate in two ways. First, the team considered all who did not graduate as dropouts. We consider this the upper bound dropout rate. It is based on the assumption that all students continuing in school will eventually drop out.

Second, the team looked only at students formally categorized as dropouts, or our lower bound dropout rate. For this calculation, the team made the assumption that all groups other than dropouts will eventually graduate.

Figure 1: Upper and Lower Bound 9-12 Dropout Rate, State Level

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Upper Bound Texas Dropout Rate	19.3%	17.1%	17.1%	16.5%	14.5%	14.1%	13.0%	12.4%	11.2%	12.2%	17.4%	20.0%
Lower Bound Texas Dropout Rate	12.1%	9.9%	8.9%	8.5%	7.2%	6.2%	5.0%	4.5%	3.9%	4.3%	8.8%	11.4%

Texas Education Agency and authors' calculations

We projected upper and lower bound dropout rates for the class of 2012, assuming that every ethnic subpopulation would drop out at the same rate as their corresponding subpopulation from the class of 2007. We found that if nothing changes between now and their graduation, the class of 2012 would have a dropout rate between 12.2 and 22.2 percent, or 40,519 and 73,692 students. Both Hispanic and African American populations show the highest dropout projections. The number of Hispanic dropouts will be nearly three times greater than the number of dropouts for any other ethnicity by 2012.

In the third phase, we built on the previous phase's analysis by examining the economic implications of the dropout rate for the state of Texas. These implications are striking and worrisome. Compared with high school graduates, dropouts are less likely to be employed, earn less when they are employed, pay less in taxes, receive more in direct welfare payments, and are more likely to be incarcerated.

To estimate the differences between those who drop out of high school and those who attain a high school diploma, we conducted separate analyses using data from the 2000 Census for each of the following:

- Probability of employment: We used an individual's response to the employment status question from the census to create an indicator variable representing the probability of employment.

- Total hours: Based off an individual's responses to the approximate number of weeks they work in a year and the approximate number of hours they worked per week, we generated the total number of hours worked annually per individual.

- Hourly wage: This is the person's annual wage and salary income, divided by their total hours.

- Welfare received: This variable represents the amount in welfare an individual reported receiving annually.

Using these estimates, we calculated the cost per Texas dropout in lost wages, sales tax revenue, and welfare payments. Table 2 shows the negative impact on the Texas gross state product due to the loss in potential earned wages.

Table 2: Potential Loss of Earned Income by Race and Ethnicity

Race/Ethnicity	One Dropout's Annual Loss	Lower Bound Present Value	Upper Bound Present Value
Whites	$4,253	$735 million	$1,378 million
Blacks	$5,293	$1,145 million	$1,915 million
Hispanics	$4,747	$3,046 million	$5,626 million
All Others	$3,805	$52 million	$109 million
Total	$4,935*	$4,978 million	$9,028 million

Texas Education Agency, Integrated Public Use Microdata and authors' calculations;
*Weighted average of annual loss of potential earned income from one dropout; Numbers in 2009 dollars and based off the predicted number of dropouts from the class of 2012.

We also researched the effects of dropouts on crime and the associated costs. We then applied these predictions to the projected number of dropouts for the class of 2012.

According to the Texas Education Agency, the cost to educate one student each year is approximately $7,900. This means it would cost the state between $625 million and $1.14 billion, assuming the potential dropouts would require on average two more years of schooling to graduate. Even after taking this number into account, the negative economic impact is still predicted to be a final loss between $5.4 billion and $9.6 billion. Therefore, with the state of Texas losing this vast amount from only one cohort, it is essential that policy makers begin making this issue a priority in an attempt to reverse the current trends and their implications on the Texas economy. Table 3 shows a detailed breakdown of the economic impact of the projected dropouts from the class of 2012.

Table 3: Money Saved By Educating Predicted Dropouts Through Graduation

	Lower Bound	Upper Bound
Present Value of Potential Earned Income	$4,978 million	$9,028 million
Present Value of Decreased Welfare Costs	$405 million	$736 million
Present Value of Decreased Incarceration/Crime Costs	$595 million	$1,014 million
Present Value of Cost to Educate Dropouts	-$625 million	-$1,137 million
Total	$5,353 million	$9,641 million

In the final phase of the analysis, the team thoroughly examined how others seek to address the problems highlighted in the previous three phases. We analyzed the available evidence of program efficacy to identify best practices and gaps in the current research models.

We conducted a literature review, critically evaluating available information on current dropout prevention programs. This analysis identified best practices for reducing the number of high school dropouts. The team looked at an assortment of programs, including Communities In Schools, Abriendo Puertas, GEAR UP, and other prevention and intervention programs implemented at various age levels. The literature review and political feasibility drove the selection process. We selected programs that serve as common, popular, or widespread models. A brief excerpt of our analyses is below:

- **Communities In Schools**:
  CIS of Texas has the potential to be a flagship dropout prevention program for the state, given its strong national reputation. The evidence suggests that program structure keeps students in school and meets at-risk students' needs. A potential concern is a lack of checks and balances to ensure that each affiliate is accurately implementing the CIS model. A multiyear longitudinal study needs to be financed to be more convincing, and prove the validity of the CIS program. Despite the need for further research, we feel that Texas should explore expanding funding to CIS Texas.
- **The National Guard's Youth ChalleNGe:**
  A unique aspect of Youth ChalleNGe is its targeting of dropouts and expelled students, as opposed to students labeled at-risk and still in school. However, the lack of performance measurements and absence of comparison to other military-style programs leaves limited ability to judge its effectiveness. Evaluative studies suggest the National Guard needs to develop performance measurements before any substantive efficacy evidence will be available. Given its self-selected population and ultimate recruitment goals, this program may not be a viable option for the state of Texas.

- **Check and Connect:**
  This program does not currently operate in Texas; however, efficiency studies provide strong evidence of its effectiveness in its operational areas. It is one of few programs that have been evaluated multiple times, mostly over periods of several years. Each evaluation shows positive performance in at least one area of dropout prevention. Given Check and Connect's success, Texas should consider implementing the program as part of its overall dropout prevention strategy.
- **GEAR UP:**
  The specific aim of GEAR UP is not dropout prevention but creating a viable pipeline to college in populations/schools where such a pipeline does not exist or is not effectively serving its student populations. GEAR UP's efforts to create a college going culture and mindset were shown to be effective; however proper academic achievement is the result of quality instruction and academic resources. The supplemental resources provided by the GEAR UP program cannot supplant this. An interview with Austin ISD revealed that GEAR UP is expensive to facilitate as it relates to staffing, especially with the cohort format utilized, and the program is very time consuming due to the case management approach.
- **Abriendo Puertas**:
  While the research model for this program has strong evidence of effectiveness in health related fields, no evidentiary basis exists on which to recommend funding. Unfortunately, Abriendo Puertas has had no evaluation conducted to determine whether or not it is an effective approach for education related topics such as dropout prevention. It sounds like the program should be effective; however, Abriendo Puertas needs to engage in preliminary program evaluation.

Literature suggests the most effective prevention strategies are those based on early intervention. Early intervention is based on the notion that intervention strategies taken at the first indication of being at risk of dropping out are more effective at preventing dropouts than waiting until students reach high school. However, researchers concluded that no one risk factor can predict with certainty whether or not a student will drop out, making dropout prevention/intervention programs in many cases, experimental. Multiple attempts have been made to define and clarify best practices for dropout prevention and standards of evidence for program efficacy. Despite noble efforts to conduct evaluative research, limited evidence of effectiveness is available to decision makers and stakeholders.

This project was not intended as a definitive solution, but an informative tool for policy makers, legislators and other key stakeholders to use in their deliberation of education policy, specific to dropout prevention, within the state of Texas. Through the extensive research and analysis devoted to this project, we believe the findings are vast and troublesome, and in need of immediate attention for the wellbeing of the Texas education system and economy.