

ABSTRACT

Metrics for Prosperity in Waco: From Qualitative to Quantitative Goals

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Using effective quantitative metrics to represent qualitative goals is essential for accurately measuring holistic community improvement, tracking progress, and determining focus areas. Using Prosper Waco's proposed goals to measure improvements in education, health, and financial security as a starting point, I determined the specific tools, metrics, and exact numbers to effectively quantify Waco's community improvement. In education, this included researching the options for tools to measure readiness to learn in children entering kindergarten, analyzing 3rd grade reading levels, and establishing the best metrics for career readiness. I also conducted statistical analyses on data involving health insurance, food insecurity, community wellness, and teen pregnancy, and used the results to determine the best statistics for measuring the effectiveness of attempts to improve health and wellness for the residents of Waco. Finally, determining metrics for financial security involved analyzing data on poverty, employment, and post-graduation achievement. This report outlines the quantitative goals that Prosper Waco may use to measure improvement and the research that drew me to the conclusions I found.

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METRICS FOR PROSPERITY IN WACO:
FROM QUALITATIVE TO QUANTITATIVE GOALS

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CHAPTER ONE

Introduction

The goal of this paper is to determine the metrics that will best measure the improvements of the Waco community for Prosper Waco, a collective impact initiative determined to measurably improve overall well being of the residents of this city. By determining and setting quantifiable goals, Prosper Waco will be able to measure the success of their mission: To create an environment in which all members of our Waco community are able to measurably improve their education, health, and financial security (“About Prosper Waco,” n.d.). Prosper Waco is determined to establish final goals that are “Synergistic, mutually reinforcing outcome, measurable, timely, guiding strategy, and conceived to achieve Vision/Mission” (Virginia DuPuy, personal communication, 2014). Through statistical analysis of existing data and a literature review on possible metrics for specific goals, I establish measurable, effective goals for Prosper Waco.

Prosper Waco came to focus on these areas and the specific goals listed below based on research presented in the Poverty Reduction Initiative Report by the School of Social Work of Baylor University and the report from the Poverty Solutions Steering Committee (PSSC) presented to the Waco City Council entitled “Moving from Poverty to Prosperity” in 2012. The committee, through a series of “next steps,” presented the idea of creating such a collective impact organization and developing goals through PSSC task teams. Aspirations and working goals were formed based on practices implemented in other cities and current research (Poverty Solutions Steering Committee, 2012).

In each of the three sectors, I will address the proposed goals that Prosper Waco is considering as a starting point for establishing finalized metrics, discuss the best way to measure the goals, and mention potential downsides or better alternatives. I analyzed and adjusted the following goals:

1. Increase the percentage of children arriving at school ready to learn
2. Increase the percentage of students' reading proficiency, at a minimum of grade level by 3rd grade
3. Increase percentage of post-secondary achievements—Career Ready and/or Completed Associate's or higher degrees
4. Increase the number of people with health insurance
5. Improve the Food Environment Index/Decrease Food Insecurity
6. Increase wellness of the community—physical activity and access to exercise opportunities
7. Reduce teen pregnancy
8. Increase the number of households in Waco with income exceeding twice the Federal Poverty Level
9. Increase the labor force participation and decrease unemployment rates for 16-24 year olds
10. Double the post-graduate achievements of economically disadvantaged students: 8th grade cohort completion rate

(DuPuy, personal communication, 2014).

These goals required a diverse range of research methods. Whenever data was available, usually collected and determined through the United States Census, I analyzed

McLennan County's progress over the years and compared the statistics of the community to other counties in Texas, as well as Texas to other states. Where possible, I also compared different metrics and statistics to see which would most effectively measure improvement efforts in Waco. Whenever data was not available, I determined the best metric and what data should be collected through extensive literature review and consultation with experts. Finally, I broke down the goals that Prosper Waco is attempting to measure, and determined the statistic that would correlate most strongly with the actual community development efforts in the city.

As I address each goal, I discuss my research and findings, and conclude with a recommendation for a precise quantitative metric. I include charts and graphs that I created based on my work analyzing data obtained from the resources listed. In the conclusion, I present a comprehensive list of the goals and metrics I recommend Prosper Waco use for monitoring progress of holistic community improvement in education, health, and financial security.

CHAPTER TWO

Education

Introduction

Prosper Waco first focuses on education, a key component to community transformation and engagement because it is often the starting point for individuals recognizing their human capability and potential. A critical aspect of improving education in Waco is recognizing the importance of creating and implementing consistent metrics across all schools and districts. Consistent survey methods throughout the schools are vital for measuring improvement. Once this is established, it becomes more manageable to compare and measure the successes of different schools regarding each goal.

Prosper Waco's educational goals concern three very different concepts that measure the success of an educational system: readiness to learn for children entering kindergarten, reading proficiency, and career readiness or higher education degrees. For children arriving to school ready to learn, there is not a consistent, holistic metric that exists to accurately measure a child's readiness, as there are many different educational and interpersonal factors that determine if a child is ready to learn, many of which are relatively subjective. Thus, for this goal, I compare the options that exist to measure a portion of a child's readiness and examine the most effective way that Prosper Waco can create a standard for measuring this goal across the city. Student's reading proficiency data is collected and distributed back to schools through the STAAR test beginning at the 3rd grade level, so I look at this data and set specific numerical goals for all schools and

education-oriented nonprofits in Waco to rally towards. Concerning post-secondary achievements, I address different methods of measurement and definitions for the term ‘Career Ready’, as well as statistically analyze data on the percentage of citizens with post-secondary degrees. With literature review and data analysis, I conclude by discussing the limited options that exist for realistic and accurate metrics. This chapter concludes with a starting point for effectively measuring the improvements of education in Waco.

Readiness to Learn

Measuring readiness to learn of students when entering kindergarten in some capacity is nationally mandated, but the specific method by which states, districts, or even schools are to collect this measurement is flexible. It must simply fall within the standards provided by the Texas Student Data System in a report of Texas Education Data Standards on Early Childhood Data System, in that they must:

1. reflect field research of early childhood education;
2. be “well-grounded in the cognitive, social, and emotional development of young children;”
3. use consistent criteria for all program providers;
4. and fulfill the reporting requirements of the Texas Student Data System.

As of October 4, 2014, there is no required or standard method of measuring readiness to learn across the state, but the Texas Education Agency (TEA) is in the process of establishing such a metric (“Texas Education Data Standards,” 2015). In the meantime, the greater Waco area needs to choose a consistent method to measure readiness to learn for students entering kindergarten across all local schools to determine the efficacy of

local pre-kindergarten preparation programs and classes. This metric should include a component of readiness to read, readiness to learn math, and social readiness in order to be a holistic measure of children's readiness. Collecting data on students' readiness to learn can allow the comparison of different pre-kindergarten programs in Waco and determine which are most effective and which strategies need to be implemented in ways that reach more students before they enter kindergarten in order to increase the percentage of children who are ready to learn.

A starting point for improving readiness to learn data in Waco would be encouraging more Waco area schools to participate in the Texas School Ready! project through the Children's Learning Institute. Essentially, the project takes place in communities where different groups preparing students for kindergarten (including school districts, Head Start agencies, and child care providers) work together to provide high-quality pre-kindergarten education to at-risk children to improve their readiness to learn (Zajano et al., 2011). In Waco, about 8,000 children have gone through the TSR!, preparing them more effectively for pre-kindergarten with research-driven curriculum and sustainability (Children's Learning Institute, n.d.). A study conducted by Learning Point Associates on the Evaluation of Early Childhood School Readiness Demonstration Projects and School Readiness Certification System demonstrates the efficacy of the project and useful results about students' readiness to learn. In Waco, the program has successfully increased the number of students entering kindergarten at a satisfactory level of readiness to learn for those participating in a school or program that used the TSR! method of evaluation and preparation. Research in Texas done by the University of Texas-Houston Health Science Center found no correlation to readiness to learn for

community maturity, site growth, or school size, demonstrating that these factors do not need to be considered when evaluating and attempting to improve programs in Waco. Statistically significant differences were found between the three different types of care/education provision, likely caused by the different students that Head Start serves compared to public schools and childcare centers. For places where the TSR! program was being implemented, the rates of reading readiness measured by the Texas Primary Reading Inventory improved overtime. This shows that the Texas School Ready! Project curriculum produces results in a reputable, effective metric system, with an increased percentage of students at the “satisfactory” performance level for readiness to learn by the end of the school year each year (Zajano et al., 2011).

Unfortunately, the TSR! Project recently lost grant money and does not have sufficient funding for the majority of the schools in Waco anymore. Their funding comes from the TEA Children’s Learning Institute, and now goes only to head start and child care programs, leaving public schools no longer eligible. Regardless of the lack of funding, TSR! has unreliable measures of social readiness because it does not reflect in classroom experience. In conclusion, unless TEA receives significantly more grant money for Waco schools, an alternative measure of readiness will be necessary (Konrad, personal communication, 2014).

In measuring readiness to learn, three components are necessary to take into account: readiness to read, readiness to learn math, and social abilities (Baker & Cooper, personal communication, 2015). As the TEA has only listed the readiness to read measurement systems that it accepts, I use these as a starting point for the overall metric (“Texas Education Data Standards,” 2015). I will then discuss what tools can also be used

to measure readiness to learn mathematics and the options that exist for a social screener of readiness for school. As no single holistic statistic exists, Prosper Waco will have to combine the metrics in these areas to create a consistent measurement system across McLennan County.

Readiness to Read

The Texas Primary Reading Inventory (TPRI) is one of the reading assessment standards accepted by the TEA, with its goal of measuring kindergarten students' potential success in learning how to read. It consists of a screening for students at risk for reading difficulty that includes Letter Sound, Blending Onset-Rhymes and Phonemes for students entering kindergarten, as well as an intensive inventory that includes book and print awareness, phonemic awareness, graphophonemic knowledge, and listening/reading comprehension for those students who passed the initial screening. It is administered individually by trained teachers through a screening that identifies clearly at risk children and an inventory that helps the teacher set learning objectives for the student through a detailed assessment of the student's strengths, weaknesses, and overall ability.

TPRI is a sound, reliable test because it is constantly being reevaluated and adjusted to make the scores more predictive indicators using appropriate and effective statistical analysis tests. Cronbach's alpha is computed for each subtest and each task and used to determine the reliability of the test by assuring that "all items perform similarly, and were all measuring the same construct." The kindergarten level tests have incredibly high Cronbach's alpha levels for all students and when distinguishing between race and gender alike, it indicates the success of the test at measuring the intended goal. Differentiability between items is minimized through item response theory models that

determine “the probability that performance of that item for each group is different at the same level of ability” and therefore confirm that the tests are unbiased. For kindergarteners, the TPRI only has a false negative rate of nine percent, a relatively high value for such a qualitative-driven test (Texas Institute for Measurement, Education, and Statistics, 2014)

Despite its accuracy as researched at the University of Houston, the American Institutes for Research did not find TPRI to be relatively valid and reliable, relative to the other options available. Since the American Institutes for Research looks at all tests across America objectively and is well-known for producing quality research, it is clear that the TPRI must not do as good of a job as other possible options for tests. It is currently the most popular tool for measuring readiness to learn in kindergarteners, but it would be incredibly beneficial for Waco to use a different metric. With other metric options, schools can improve progress tracking and data availability through computer programs. Other options are also significantly more time efficient, giving teachers more classroom time as less time is spent on testing.

The following table summarizes all the programs of measuring readiness to read that the TEA accepts for this metric. It includes a brief rating of their reliability and validity, from low to moderate to high, based on the research done by the American Institute for Research in conjunction with the United States Department of Education. I created this table to synthesize the information that each system has to offer and make comparison between potential measurement systems simple and straightforward. Note that many of the tests track individual student’s progress through many years, a useful additive to the test for data collection. It is also essential to notice the programs with

Spanish-speaking options, an essential in Waco, as this community has a large Spanish-speaking population. There is also a huge advantage to computer-adaptive tests as opposed to those measured individually by the teacher, as they are consistently more time efficient.

Program	What is tested	Administration Frequency	Tracking Subjects covered	1. Progress and Data Tracking 2. Time Efficient 3. Spanish-speaking program 4. Reliable and Valid
AIMSweb MIDE/TEL	3 Tiers: Universal screening, progress monitoring for at risk students, intensive progress monitoring for students at risk or with severe need	Online Tier 1: 3/year, Tier 2: monthly, Tier 3: frequently	K-12 reading, mathematics, and language arts	1. Y 2. Y 3. Y 4. moderate
Children's Progress Academic Assessment (CPAA)	Literacy: Reading, listening, phonemic awareness, phonics/writing/mechanics. Mathematics: Operations, numeracy, patterns & functions, and measurement	computer-adaptive 3-9 times a year	preK-3 (English) preK-2 (Spanish) literacy and mathematics	1. Y 2. Y 3. Y 4. No data
Diagnostic Assessments of Reading, 2nd Ed (DAR-2)	print awareness, phonological awareness, letters and sounds, word recognition, word analysis, oral reading accuracy and fluency, silent reading comprehension, spelling, word meaning	individually by teacher (no training required) unspecified	K-12 Reading	1. N 2. N 3. N 4. No data
Dynamic Indicators of Basic Early Literacy Skills, 6th Ed (DIBELS-6), Next (DIBELS Next)	Phonological awareness, alphabetic principle and phonics, accuracy and fluency comprehension, vocabulary and oral language	one on one with each student screening 3/year for all students, (at risk students more regularly)	K-6 literacy and reading	1. Y 2. Y 3. N 4. Moderately low

Fox in a Box	phonemic awareness; phonics; vocabulary; reading comprehension; fluency; listening comprehension and writing development	one on one with each student	K-3	1. N
				2. N
		unspecified	Literacy	3. N
				4. No data
Istation's Indicators of Progress (ISIP & ISIP- Spanish)	phonic awareness, letter knowledge, alphabetic decoding, comprehension, vocabulary, spelling, and text fluency	computer- adaptive	preK – 12	1. Y
				2. Y
		monthly or as needed	early reading, advanced reading, spanish, and math	3. Y
				4. Moderately high
PAPI English/ Spanish	same and different, rhyming words, beginning/ending sounds, capital & lowercase letter recognition, blending, sight word recognition	administered by the teacher	K-2	1. N
				2. N
		two to three times a year	Phonics	3. Y
				4. No data
Phonological Awareness Literacy Screening (PALS)	phonological awareness, alphabet recognition, concept of word, knowledge of letter sounds and spelling	administered individually by teacher	PreK-3	1. Y
				2. N
		two times a year	Literacy	3. Y
				4. Moderately high
STAR Early Literacy	print concepts, phonological awareness, phonics and word recognition, fluency, vocabulary acquisition and use, counting and cardinality, operations and algebraic thinking, measurement and data	computer- adaptive	PreK-3	1. Y
				2. Y
		unspecified	Reading and mathematics	3. Y
				4. High
Texas Primary Reading Inventory (TPRI)	Initial Screening to determine clearly at-risk students: letter sound, blending onset-rimes and phonemes. Intensive Inventory for remaining students: print awareness, phonemic awareness, graphophonemic knowledge, and listening/reading comprehension	administered individually by trained teachers	K-3	1. N
				2. N
		3 times a year	Reading	3. Y
				4. Moderately low

Tejas LEE	book and print awareness, phonological awareness, rhyming, blending syllables, segmenting words into syllables, initial/final sound identification, blending phonemes, graphophonemic knowledge, letter naming, letter sound identification, decoding/single word reading, listening comprehension	administered individually by teachers	K-3	1. Y
				2. N
		3 times a year	Reading	3. Y
				4. No data
Vital Indicators of Progress (VIP)	letter naming fluency, initial sound fluency, phoneme segmentation fluency, nonsense word fluency, reading connected text, retell fluency	Online	K-3	1. Y
				2. Y
		Unspecified	Reading	3. N
				4. No data

(“CPAA from NWEA,” 2014, “Curriculum-based measurement for progress monitoring,” 2014, Texas Institute for Measurement, Education, and Statistics, 2014, “Diagnostic Assessments of Reading (DAR), 2nd Edition Details,” n.d., “Dynamic Indicators of Basic Early Literacy Skills (DIBELS),” n.d., “Fox in a Box Product QuickFacts,” n.d., “ISIP Early Reading Assessment,” 2014, “PALS: Phonological Awareness Literacy Screening,” n.d., “Phonemic Awareness Phonics Inventory,” n.d., “STAR Early Literacy,” 2014, “Tejas LEE - Home,” n.d.; Peyton & Macpherson, 2010)

Information about the reliability and validity of each program came from compiling reports done by the National Center on Intensive Intervention at the American Institutes for Research, the National Center on Response to Intervention under the U.S. Department of Education Office of Special Education Programs, and the Center on Response to Intervention at American Institutes for Research. They each reviewed the most widely used progress screening tools and determined their efficiency of implementation. Most noteworthy is that TPRI received the lowest ranking in reliability and validity, indicating that despite the research the TPRI produced establishing their alleged success, they did not show a compelling argument to the American Institute for Research compared to the other academic screening tools that their results are valid and

reliable (“Academic Progress Monitoring GOM,” 2012, National Center on Response to Intervention, 2012, “Screening Tools Chart,” 2014).

Overall, the STAR Early Learning literacy measurements appears, on paper, to be the best metric to test readiness to learn and reading rates throughout the children’s education. It is reliable, used throughout America, includes Spanish, and can track individual students starting in pre-kindergarten, so students can be measured throughout their early development, and pre-kindergarten programs can be evaluated and improved to increase the rate of child readiness to learn in Waco. Individual students can be tracked from pre-kindergarten through third grade, which would provide extensive data on the success of pre-kindergarten programs as we measure how well students from different pre-kindergartens are learning. The STAR test takes about 10 minutes and can be administered as frequently or rarely as the teacher prefers, from three times a year to once a month to weekly. It uses a computer adaptive testing method, which is highly effective in progress monitoring of students’ academic skills when they are using the response to intervention process for educational decision-making. There is clear statistical evidence of STAR’s reliability, predictability, validity, and internal consistency that proves it will not only be an effective measure of readiness to read for children at the beginning of kindergarten, but also a useful tool to measure student’s growth (“The Research Foundation for STAR Assessments,” 2014).

Despite its excellent appearance, according to Gayla Reid, the Waco ISD K-2 specialist, STAR does not measure the components of pre-kindergarten because it is created for the older grades. STAR does not make it clear what level the pre-kindergarteners are at and makes it hard to follow the progression of student’s learning.

Therefore, it tracks learning more accurately with a higher starting grade than kindergarten as it does not work well for early learners. It has poor transitions between programs; for example, students are not allowed to start the reading curriculum until they are already able to read 100 sight words, which they do not teach, and pass a screener. This forces gifted students to stay behind and prevents the program from flowing well. The material STAR provides for pre-kindergarten, does not align with the standard pre-kindergarten standards: The Revised Texas Pre-kindergarten Guidelines, which includes letter knowledge and more (Gayla Reid, personal communication, 2014).

Istation is the only other metric with moderately high reliability and validity, time efficiency; a Spanish-speaking program; and progress and data tracking. These are all important elements for a readiness to learn indicator in Waco, Texas, so Istation is the natural next best option to consider. Istation knows the level the child is on and aligns well with the pre-kindergarten guidelines. Istation gives a more comprehensive picture than both STAR and TPRI, measuring areas beyond simple isolated phonic skills. Istation expands this to include phonics awareness, vocabulary, comprehension, and reading. Istation supports the teachers by focusing more on equipping teachers with resources to better reach the children with teacher-friendly reports and research-based teacher innovation lessons for the needs of the specific student's weakness. The program is more engaging, includes monthly progressive assessments, and has better reports. The teacher monitors the work and is much more effective than TPRI. The Waco Collective Impact Initiative would have the most all-encompassing data on readiness to read through the Istation reading assessment (Reid, personal communication, 2014).

Istation's Indicators of Progress software immediately produces customizable, actionable reports for all assessments and progress monitoring quizzes, making it easier for teachers to make decisions about curriculum and next steps. Teachers have found the reports to be relevant and easy to understand and apply ("Data-Driven Results," n.d.).

Readiness to Learn Math

TEA has not established a comprehensive list of programs that they accept for measuring readiness to learn math standards for children in pre-kindergarten yet. With this in mind, and because many of the programs that measure readiness to read also have math testing and curriculum, it makes the most sense to simply measure math readiness with the same tool that McLennan County uses to measure reading readiness. Unfortunately, Istation begins mathematics assessment tests at the 2nd grade level and thus would not be useful for readiness to learn math metrics ("ISIP Math Assessment," 2015).

Until an established, standard readiness to learn mathematics test is created and affirmed by the TEA, it makes the most sense for Prosper Waco to simply not include this factor. There has been copious research done on readiness to learn math and the standards that are required for pre-kindergarteners to be prepared for their math education, but nothing commonly used or definitive throughout the United States or in Texas. Once the TEA addresses the possible metrics for measuring these skills alongside their metrics for measuring readiness to read, it would be essential to add readiness to learn math to the readiness to learn component of Prosper Waco's first goal of increasing the percentage of children arriving at school ready to learn. Readiness to learn math is a

key element of readiness to learn for students entering kindergarten, so as soon as a system for testing this is established, Prosper Waco should take it into account.

Ready, Set, K!, an initiative of the Education Equals Economics Alliance in central Texas, is the first and only metric measuring the holistic readiness to learn of pre-kindergarten students in Texas. Created in 2008, the readiness assessment includes early mathematics skills (Koenig, n.d.). If schools in Waco could begin using the Ready, Set, K! curriculum and assessment tools, Prosper Waco would be able to analyze the level of readiness holistically. Details about this standard for school readiness are discussed shortly in detail in the ‘Readiness to Learn Conclusion.’

Social Screener

The readiness to learn metric system of the School Readiness Certification System (SRCS) partners reading assessments with social assessments to determine if students will be academically and socially prepared to learn in the classroom environment. The SRCS effectively measures how a pre-kindergarten is doing in preparing students for kindergarten as a whole, but does not focus on the individual students. The social portion is not required, but it is useful in determining the efficacy of pre-kindergarten programs through the SRCS, which collects data on pre-kindergarten programs over the course of the student’s time in pre-kindergarten and in kindergarten to determine if the pre-kindergarten program has successfully prepared the student for school. By December of the child’s kindergarten year, the SRCS data is matched back to the pre-kindergarten classrooms to measure their success through a factor analysis test that can be performed on this data to determine if the pre-kindergarten programs show

statistically significant differences in the social screener items. The SRCS includes the following social standards:

1. negotiates solutions to conflicts with other children,
2. takes other children and their points of view into account,
3. cooperates with other children in group activities,
4. comforts or assists another child in difficulty,
5. takes care of toys,
6. attentive toward younger children,
7. works easily in a group,
8. helps with everyday tasks,
9. accepts compromises when reasons are given,
10. and takes pleasure in own accomplishments.

Many factors correlate with a child's readiness to learn and determining which correlate strongly and are controllable gives tangible areas for improvement. Factors that are shown to statistically correlate with lower performance in reading readiness include reduced-price lunch eligibility, being male, special education status, and limited English proficiency status. Student attendance in pre-kindergarten positively correlates with student's readiness to learn. There is a statistically significant negative relationship between the age of a program or school and performance on readiness to learn standard measurements, indicating that fresh, new programs are generally more effective at producing better prepared kindergarteners than longstanding programs (Zajano et al., 2011).

Tools for measuring the social component of readiness to learn vary greatly across the states, but most states have standardized systems to collect this data. Texas does not yet have a system that has become widely used for measuring individual students, but the first was created at the Education Equals Economics Alliance as the Ready, Set, K! initiative. Although this program was just created in 2008 and is not yet widespread, it is worth considering participating in, as it is currently the only option that exists in Texas for this metric (Overschelde & Koenig, 2012). In light of this, it would be beneficial to use a measure reputable and common to Texas, as there are no commonly used metrics across many states. Ready, Set, K! has the potential to be that metric for the state, as it has already grown in popularity and had success in the Austin area (Dawson, n.d.).

The TSR! assessments also contain a social portion, but they are considered conscious discipline and therefore lack parent training, making it an unreliable option. STAR and Istation, as computer based curriculum, do not contain social evaluation tools. Currently at the Waco ISD, the public school system is using their own assessment created by Dr. Mary Konrad to measure the exact Texas guidelines for social behavior requirements, based on the Children's Learning Institute (Konrad, 2014). These progress reports created by the Waco ISD roll over from pre-kindergarten into kindergarten, a consistency that makes monitoring children's social behavior easier. These assessments are embedded in conscious discipline and Frogstart programs, and they align with the state standards (Reid, 2014).

The options that exist for a social screener of readiness to learn for pre-kindergarten students are for Prosper Waco and the education community in Waco to create their own metric, or begin using the Ready, Set, K! curriculum and assessment

tools. Much research has been done and metrics created in many different states across America on this topic, but research in Texas has been limited to the recent work of the Education Equals Economics Alliance. The success of the program so far in Travis County demonstrates its great potential, but only time will tell the accuracy of its metrics, quality of its curriculum, and effectiveness of the program.

Readiness to Learn Conclusion

For measuring readiness to read in children entering kindergarten, Istation is the best option for a program accepted by TEA that holds national ethos and tracks students' progress as they continue into kindergarten. This system is effective and highly credible, but is limited in that it can only measure early literacy for children in pre-kindergarten ("ISIP Early Reading Assessment," n.d.). Thus, although a great tool to encourage the most effective and accurate measurement of readiness to read, another option must be used for holistically measuring readiness to learn.

Overall, Ready, Set, K! is the best option for holistically measuring the improvement in readiness to learn for children entering kindergarten in Waco. The Education Equals Economics Alliance proved the reliability and validity of the Ready, Set, K! online tool to assess Pre-kindergarten students' readiness, formerly known as the Central Texas Guide to School Readiness. To determine if a student is ready for kindergarten, this resource has the child's teacher measure four competencies for each of these four domains: Social Emotion, Language and Communication, Emerging Literacy, and Mathematics (Overschelde & Koenig, 2012). Ready, Set, K! is a curriculum-based assessment developed by the Central Texas early childhood educators that monitors

student progress in pre-kindergarten and assists teachers in facilitating the student appropriately preparing for kindergarten (Doggett, n.d.).

The Ready, Set, K! assessment used data from 2009 to 2011 studying kindergarten readiness to determine the correlation of different factors through factor analysis, and concluded that social emotional readiness can have all four competencies for the social-emotional development grouped together as into one metric to be used alongside the three domains for academic readiness: communication, literacy, and math. Cronbach's alpha test was used to measure the validity and internal consistency of the data and Ready, Set, K! analysis (Overschelde & Koenig, 2012).

Ready, Set, K! is the best option for measuring readiness in central Texas. As education is run by the state, it is beneficial to use a readiness to learn indicator that follows state guidelines, and this tool, designed by Austin researchers, passes the National Association for the Education of Young Children's guidelines for choosing appropriate assessments of young children (Snow, 2011). This first standard for school readiness in Texas has had great success in Travis County, and there is no program parallel in Texas. The Ready, Set, K! initiative began its study in the 2011-2012 school year with 50% of children entering kindergarten ready to learn, and set the goal of 70% of students ready to learn by 2015 (Overschelde & Koenig, 2012). By the end of the year, it will be evidenced if the Austin area has met their goals.

Before setting an exact numerical goal for the percentage of students that enter kindergarten ready to learn, Prosper Waco should encourage as many pre-kindergarten students as possible to use Ready, Set, K! for a year to determine the starting point of the city. Within a couple of years, with data on the percentage of children currently entering

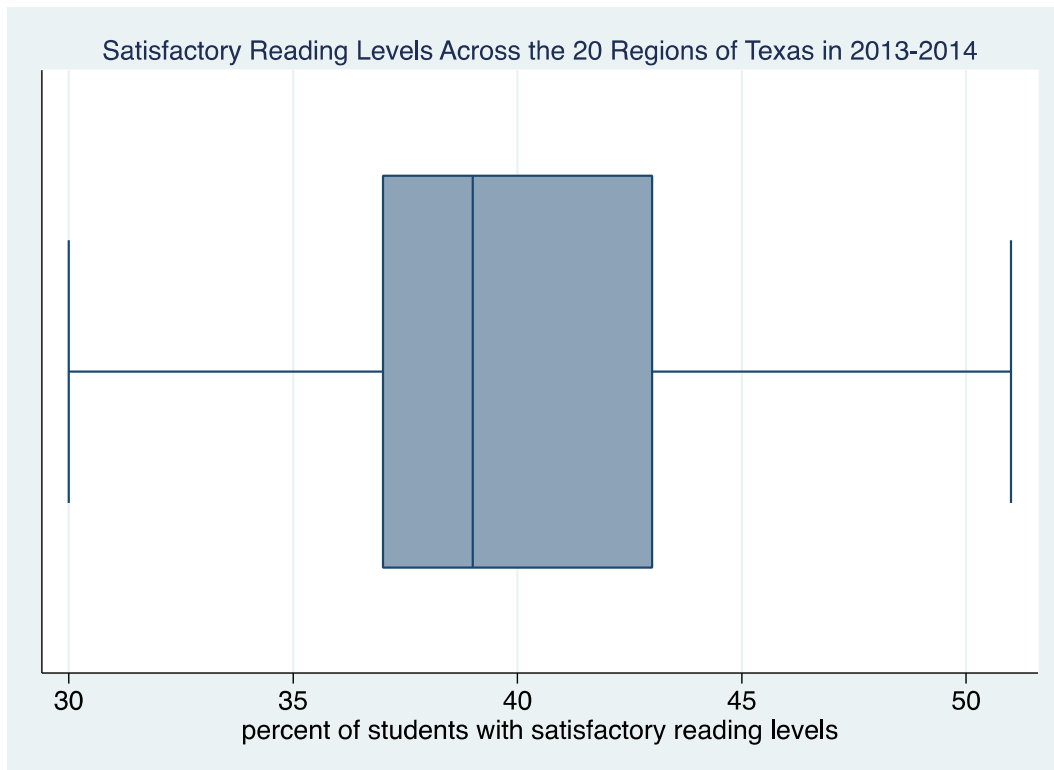
kindergarten ready to learn McLennan County and data on the progress in Travis County from the past several years, Prosper Waco will be able to set an attainable goal. Looking at Travis County's progress, Prosper Waco will be able to establish reasonable expectations for the progress that can be made with Ready, Set, K! and can choose a goal based on the starting point that will be determined from the data on McLennan County.

Reading Proficiency

The next preliminary goal set by the Prosper Waco concerns students' reading proficiency at the third grade level, which can be monitored through the Istation literacy assessment tool as well. The Istation tests are reliable, as discussed in the previous section, and excellent measures to help teachers prepare the students to be literate by third grade. Using this would also eliminate the need for additional assessment tools, as it measures both readiness to read in pre-kindergarten and reading proficiency in 3rd grade. This would give students and teachers a consistent, understandable measure of their progress throughout elementary school.

If Istation cannot be implemented throughout the greater Waco area, this metric can also be measured using the required State of Texas Assessment of Academic Readiness (STAAR) data, as STAAR testing begins in 3rd grade and continues throughout a child's Texas primary and secondary education. TEA annually releases data on the results of the STAAR tests, downloadable from their website through SAS or SPSS, so this information is simple to obtain for anyone with experience in statistical programming ("STAAR Aggregate Data For 2013-2014," n.d.). Using the Grade 3 English data file at the Region aggregate level and looking at the "r_all_satis_rec_rm" statistic, which is the percentage of students who achieved level II satisfactory—final

recommended— in reading for all students, we can see the percentage of students with a solid reading proficiency by the TEA standards (“STAAR Variables, Formats, and Descriptions,” n.d.). To see where Waco falls, it is necessary to compare data in Education Service Center Region 12, which is the greater Waco area, of 39% of students achieving satisfactory level II to the averages across Texas of 40% achieving satisfactory level II (“Education Service Centers Map,” n.d.). There is no statistically significant difference between scores in Waco and the rest of Texas, as the standard deviation for the data falls at 5.09 and thus the z-score for Waco is -0.15. Therefore only 56% of regions in Texas have higher levels of reading proficiency than region 12. This analysis is confirmed as accurate because the data is normally distributed, as seen by the following boxplot of the data.



Looking at the spread of the data, with the top performing regions of Texas having scores of about 50%, a reasonable goal for Waco would be to have 43% of 3rd

grade students perform above satisfactory at level II in reading by 2025, which is at the 75th percentile for regions of Texas. This means that this figure would have to increase by four percentage points, so four percent more students should be able to read at a level II proficiency in the next ten years.

Post-Secondary Achievements

The final education goal of Prosper Waco is to increase the percentage of post-secondary achievements—career ready and/or completed associate’s or higher degrees. The concept of ‘career ready’ has many different definitions and ways of being measured, while the number of completed associate’s or higher degrees is measured quantitatively with ease, usually measured as the percentage of the population with post-secondary education. Preparing a high school student for a career and for college can be very different tasks, and both must be valued. Unfortunately, data on success in college is easier to establish and understand than success in careers. Both of these measures and their relationship will be discussed in this section.

Career Ready

There are many options for how to define “career ready,” which is what will be discussed in this section. Tracking Waco students who do not go on to universities and determining if they were prepared for their careers is impossible, so, for career readiness, Prosper Waco must rely on metrics that measure this qualitative idea while the students are still in high school.

The EPIC Texas College Career Readiness Initiative resulted in The Texas College and Career Readiness Standard through analyzing instructor ratings of TCCRS

and syllabi from 913 difference courses at two-year and four-year Texas institutions. It determined that specific content knowledge expectations varied significantly in these programs, particularly with certificate programs, but found a core of common expectations in learning behaviors and cognitive strategies students needed to demonstrate. Funded by the Texas Higher Education Coordinating Board, the project “included standards development, validity and alignment or, and systems alignment.” Capturing the essence of what is taught in entry-level Texas college courses, researchers developed implementation materials to “increase transparency between secondary and postsecondary education (“Texas College and Career Readiness Initiative (TCCRI),” n.d.). This standard, created in 2009, was developed via convergent consensus methods with teams of secondary and postsecondary educators. After extensive reviews by these Texas educators, it was validated through input from postsecondary instructors (Conley, n.d.). Despite being named as College and Career Readiness Standard, this metric focuses on success for students in the higher education classroom, and is not indicative at all of students’ career readiness upon graduating high school.

The Common Core State Standards, created in 2010, includes English Language Arts/ Literacy Standards and Mathematics Standards. For English/Literacy, the standards were “designed down from College and Career Ready Standards.” “The CCR standards anchor the document and define general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed.” The Mathematics Standards are silent on reference point beyond stating they are to enable students “to access the knowledge and skills necessary in their post-school lives” (Conley, n.d.). Although these standards are common across the

country, they focus solely on English and math, but there are many careers that do not require these skills. Once again, another metric that does not accurately look at what it takes for a student to be successful in a career.

In light of the extensive definitions and metrics, the Career Readiness Partner Council was established to create a “comprehensive strategy that bridges the gap between education and workforce preparation” in 2012. The council defined career readiness comprehensively, as follows:

A career-ready person is proficient in the core academic subjects, as well as in technical topics. This foundational knowledge base includes competence in a broad range of academic subjects grounded in rigorous internationally-benchmarked state standards—such as the Common Core State Standards for English language arts and mathematics. It also includes a level of technical-skill proficiency aligned to a chosen career field and pathway, and the ability to apply both academic and technical learning in the context of a career... A career-ready person has a good understanding of their interests, talents, and weaknesses and a solid grasp of the skills and dispositions necessary for engaging in today’s fast-paced, global economy. These include, but are not limited to:

- Goal setting and planning;
- Managing transitions from school to work and back again, and from one occupation along a career pathway to another;
- Clear and effective communication skills;
- Critical thinking and problem solving;
- Working productively in teams and independently;

- Effective use of technology; and
- Ethical decision-making and social responsibility. (Career Readiness Partner Council, 2012)

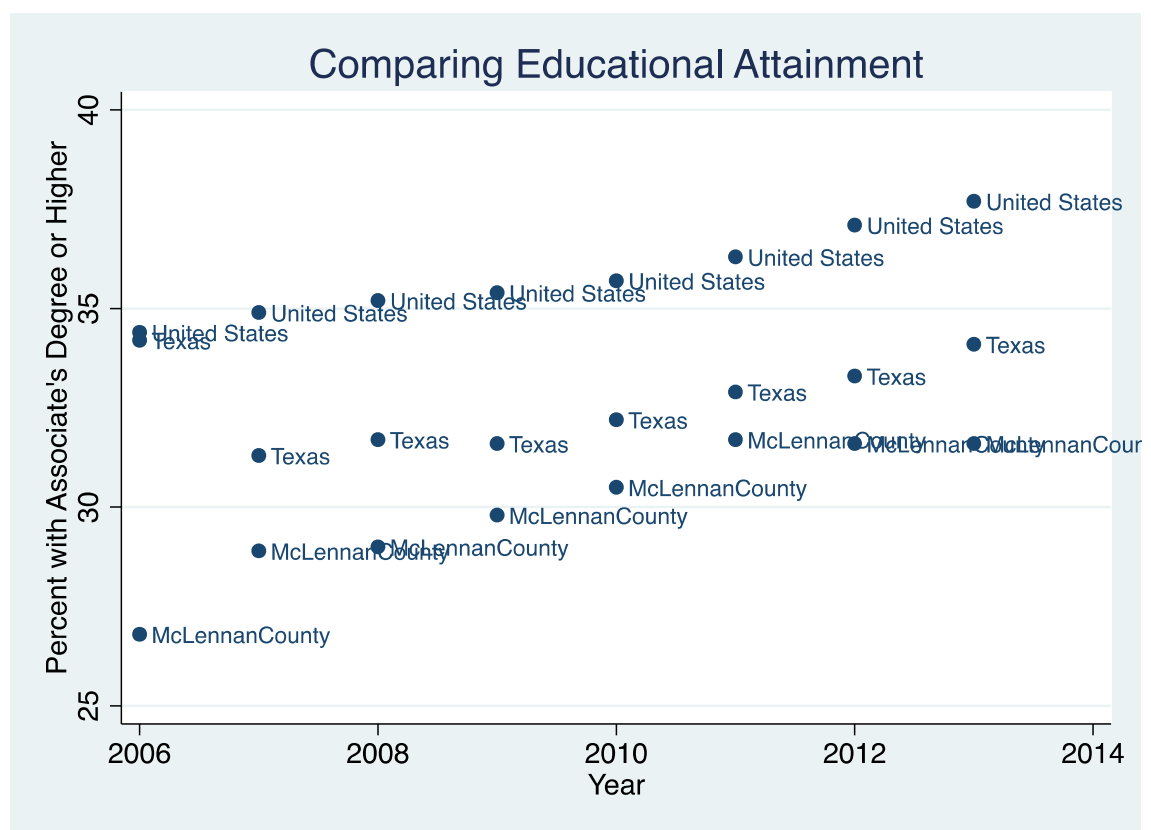
This all-encompassing definition is proof of the challenge in determining such a metric, as these skills and such preparation are impossible to quantify. This reality leaves Prosper Waco with three options for this goal:

1. Acknowledging the extreme limitations of the data and the reality that the measure is not accurate, Prosper Waco could use the Common Core Standards to measure career and college readiness.
2. Recognizing the impossibility of such a metric, Prosper Waco could choose to only set goals that can be quantified and therefore only measure the completed associate's degree or higher portion of this goal.
3. Preparing for the time and resources that would go into such a project, Prosper Waco could create a system to measure career readiness in Waco through a test or survey administered to all high school seniors.

If the resources are available, I recommend the third option for the most accurate and complete measure of career readiness as possible. If Prosper Waco does not have the resources, I would suggest opting for the second option instead of creating bad statistics and focusing on increasing the number of students who achieve higher education degrees because this will naturally increase career readiness. Regardless of the decision that Prosper Waco makes about career readiness data, higher education increases the likelihood of a student being ready for a career.

Completed Associate's Degree or Higher

Every year, the United States Census Bureau produces the American Community Survey and presents large amounts of city and county data, including educational attainment of the community. In order to access the percentage of completed associates degrees or higher, I summed the percentage of people, based on the survey, with associate's degrees, bachelor's degrees, and graduate or professional degrees. Looking at data on this percent from 2006 through 2013 for the United States as a whole, the state of Texas, and McLennan County, I found the difference between the means for each of these populations to be statistically significant ("Educational Attainment ACS," n.d.).



I ran hypothesis tests, robust equal variance tests, comparison of mean tests, and confidence intervals on the data in Appendix A to reach the conclusions explained here. The variances for Texas, the United States, and McLennan County for the percentage of

the population 25 years and over with completed Associate's degrees or higher are equal for all three panels. There is a statistically significant difference between the means of the three groups at a 95% confidence level, indicating that the percentage of the population with completed Associate's degrees or higher for McLennan County is significantly lower than that for Texas, and that for Texas is significantly lower than for the United States, and these differences are not due to random chance, but rather due to differences in the actual means of the populations.

Specifically in McLennan County, the percent of the population with Associate's degrees or higher is increasing at a rate of .665 percentage points per year, and this linear model is statistically significant with a p-value less than 0.001. Thus, if the trend continues as it has been, by 2020, 37% of the population, age 25 years and over, of McLennan County. The linear model representing this situation is:

$$y = .6654752x - 1307.287$$

This model results in the following projections, which are only expected to be reasonable for the next couple of years, as it is only based on eight years of data:

2014	2015	2016	2017	2018
32.9820668	33.647543	34.3130192	34.9784954	35.6439716
2019	2020	2025	2030	
36.3094478	36.974924	40.302305	43.629686	

This model gives us a good starting point for estimations and goal setting. A reasonable goal that I would suggest for Prosper Waco for the percentage of the population over 25 with a completed Associate's degree or higher would be to be at about 40% by 2030. That would involve raising the value 8.5 percentage points over the course of the fifteen years, compared to the most recent data of 31.6% of the population. This

would place McLennan County above average compared to counties across the state. Since higher education degrees generally take several years to obtain, longer term goals and measurement periods are better than shorter, as the percentage that the American Community Survey produces in 2016 will not be reflective of the work done in the community to get people in higher education programs in 2015, but rather will reflect how effective educational improvement efforts have been over the last four years.

Conclusion

Education is foundational to community transformation, from pre-kindergarten to post-secondary degrees. By adding consistent, effective metrics to the education programs in Waco, Prosper Waco will be able to follow students through their long-term success as students and members of the community. Through focusing on improving the statistics that the American Community Survey releases annually and the results of the Ready, Set, K! program in schools in McLennan County, Prosper Waco will be able to demonstrate measurable improvement for schools, tutoring centers, and any other organizations in Waco focusing on improving the city's education.

CHAPTER THREE

Health

Introduction

To facilitate holistic community development, Prosper Waco's goals include improving the overall health and wellness of the people of Waco. Health is key to community transformation because it is foundational to living a quality life, but measuring the health of a community requires analyzing a variety of components. Unlike education, which requires the establishment of consistent metrics across all schools, health statistics can be more easily measured countywide. The most important parts of measuring health goals lie in assuring the statistics are effectively measuring the improvements that the community is making in health and in assuring holistic measurement of every aspect of community health, including, but not necessarily limited to: access to health care, healthy food, exercise, and teen pregnancy prevention. These areas determined by Prosper Waco can be measured, respectively, through percentage of people with health insurance, the food environment index, physical inactivity, and teen pregnancy rate, yet these are not all the best ways to measure the improvement of health in Waco. This chapter focuses on data analysis and trends regarding these metrics of McLennan County's healthiness and what metrics make the most sense for these measurements.

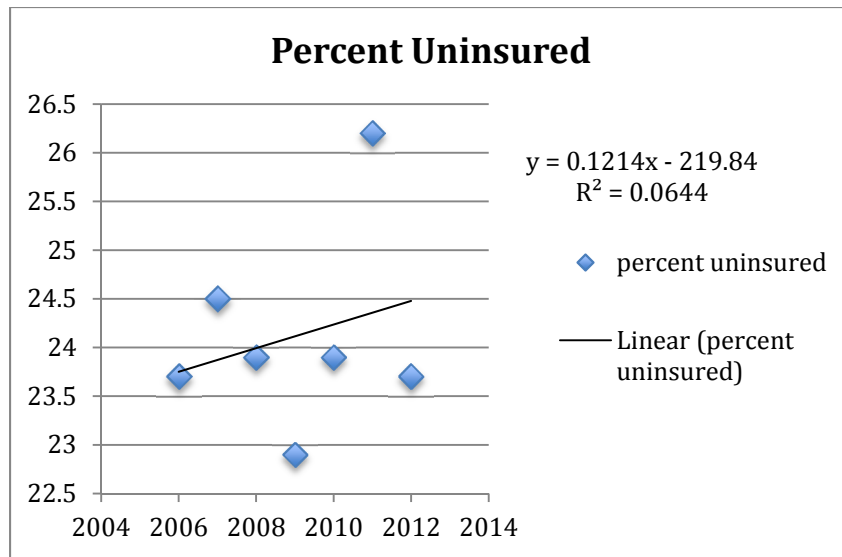
Access to Healthcare

Health Insurance

Right now, a simple measure of people's access to healthcare is the percentage of people who have health insurance. If universal healthcare is implemented in the United States, then this metric will have to be changed or this goal can be removed. Prosper Waco can simply say this goal has been accomplished and focus on the other three health goals because, with universal health care, health insurance will be unnecessary and everyone will have access to healthcare in Waco.

A Community Health Needs Assessment Survey by the University of North Texas Survey Research Center concluded that 76.1% of people in McLennan County had health insurance in 2013, an improvement from 73.1% in 2009 (Ruggiere & Short, 2013). The U.S. Census Bureau gives a similar figure based on their surveys, with the percentage at 76.3% of people under 65 years old having health insurance in 2012 ("Small Area Health Insurance Estimates," 2014).

According to the data from the U.S. Census Bureau, between 2006 and 2012, this number fluctuated between 22.9% and 27.3%. Despite efforts to decrease this figure, the percentage of people uninsured has been generally increasing. If the trend continues as it has been, about 31.2% of people in McLennan County will be uninsured by 2020 based on my statistical analysis of the data, as shown in the graph below.



With that said, it is unlikely that the number of people without health insurance will continue to increase with the Affordable Care Act (ACA), but we will not know the full extent of the legislation until several years in the future. According to the Congressional Budget Office, the ACA should increase the number of people with Medicaid and CHIP insurance coverage by about 14 million nonelderly people. Their most recent projections have about 25 million nonelderly people exiting the “uninsured” category from 2015 to 2020 (Congressional Budget Office, 2015).

This figure means that about 9.298% of nonelderly people in the United States would move from being uninsured to having insurance of some kind based on the United States 2013 nonelderly population of 268,887,800 people (“Health Insurance Coverage of Nonelderly 0-64,” n.d.). Based on the U.S. Census Bureau QuickFacts of McLennan County, McLennan County had a population of 241,481 people in 2013 with 13.1% of people 65 years and over, which means the nonelderly population of McLennan County is 209,847 people (United States Census Bureau, 2015). Therefore, according to the Congressional Budget Office projections, 19,512 nonelderly people, which is 8.08% of

the population in McLennan County who were previously uninsured, will likely have insurance by 2020.

Therefore, if the Affordable Care Act has the effect on the number of people with health insurance coverage that the Congressional Budget Office claims it will, the percentage of people in McLennan County with health insurance in 2020 will increase by about 8 percentage points from where it is now, putting the figure at about 84% in 2020. With this projection in mind, if Prosper Waco works to increase the percent of people in Waco with health insurance, a reasonable goal would be to have only 15% of people in McLennan County uninsured by 2020. Once this goal is achieved, Prosper Waco can set a new, lower percent for the goal, as the ultimate goal should be to have nobody in Waco uninsured.

Alternatives to Health Insurance

The percentage of people with health insurance is a convenient way to measure people's access to healthcare because there is precise data on the subject, but it may not be the most accurate measure of people's access to healthcare, as one can receive healthcare without health insurance. I will now explore a few alternative options to health insurance that, together, would be effective measures of people's access to healthcare.

The Behavioral Risk Factor Surveillance System, a national random digit dial telephone survey, annually gives data to the National Center for Health Statistics and Centers for Disease Control and Prevention on the percentage of the population who could not see a doctor due to cost in a year. The Texas average for this statistic is about 19%, with McLennan County at 22%, indicating this county has a higher than average percentage of the population that cannot see a doctor due to cost. This statistic would be a

useful metric because it actually accurately measures people's access to healthcare, but it has a much larger margin of error than the health insurance data because the mean must be estimated from a survey, or a random sample of people with landlines ("Could not see doctor due to cost in Texas," n.d.). With the current increase in mobile telephones and decrease in landlines, it is less likely that landline phone surveys will be perfectly representative of households, as they once were. Although this measures a much better variable, the trade-off is accuracy of the metric.

Another factor to consider when measuring access to healthcare is health care costs. Health care costs are measured as the price-adjusted Medicare reimbursements per enrollee, as determined by Dartmouth Atlas of Health Care. The Centers for Medicare and Medicaid Services, which collect data on people using these health insurance providers, have found significant differences in the amount of health care people on these programs receive across the country. As this is a relevant statistic to look at, the ideal spending per person is not known, so it is hard to set a specific goal for this statistic. McLennan County averages at \$8,979 per enrollee, with the overall Texas average at \$11,082 ("Health care costs in Texas," n.d.). Although it would not be good to be reimbursing too much and have this number too high, it would be valuable to raise this number closer to the average, so that people on Medicare will be able to receive more healthcare.

A final metric that contributes to the access to healthcare of the population is the ratio of the population to primary care physicians. This metric is useful combined with one of the previously mentioned options for measuring access to financial coverage (unable to see a doctor due to cost statistics or health insurance statistics) because it is the

other half of what is necessary for access to healthcare: financial access and access to providers. There is a supported relationship between primary care physician rates and improved health outcomes overall, but it is important to note that this is not a perfect metric. Physicians may be located on the edge of a county, other healthcare providers may be present, and the organization of the health care has a huge impact on the efficacy of the physicians. The average for Texas is 1,743 people per physician, and in McLennan County, the statistic falls at 1,559 people per physician (“Primary care physicians in Texas,” n.d.). This makes it clear that access to physicians is not the problem in Waco regarding healthcare access, and thus financial access is where this county falls behind the rest of the state.

Access to Food

The Food Environment Index

The Food Environment Index, determined annually by the Robert Wood Johnson Foundation, equally weights food insecurity through the amount of people without access to a reliable food source along with limited access to healthy foods by percent of the population that is low income and does not have proximity to grocery stores. This metric, which serves as a ranking system instead of quantitative measure of something specific, is an excellent way to measure food insecurity because it takes both of these important factors into account and determines how a county is doing in comparison to the rest of the country (“Food Environment Index Description,” 2014).

According to my analysis of the data from the Robert Wood Johnson Foundation County Health Rankings Texas Data, McLennan County’s Food Environment Index for 2014 was 5.929, while the Texas average for 2014 was 6.795 with a standard deviation of

1.180. Compared to the rest of Texas, McLennan County has a z-score in its Food Environment Index of -0.734, which means that 76.73% of counties in Texas have a better Food Environment Index than Waco (“McLennan, Texas,” 2014). Improving this statistic to the Texas average of about 6.8 would be a reasonable goal for the community, as it would require improving both food insecurity and access to healthy foods.

According to research by the United States Department of Agriculture Economic Research Service, 12.50% of the population of McLennan County qualifies as low income and had low access to grocery stores in 2010, meaning the foundation concludes 12.5% of the population with a median family income at or below 80 percent of the area median family income, does not live close to a grocery store: less than 10 miles in rural areas and less than one mile in urban areas, while the average in Texas was at 10.96% (Breneman & Beaulieu, 2014). This data has a high standard deviation of 9.72, which indicates that 56.36% of counties have a lower percentage of people living with low income and low access to grocery stores, putting McLennan County very near the center of the data. Unfortunately, this data has not been collected since 2010, and Waco has recently seen several groceries stores moving from smaller, local stores in neighborhoods to larger facilities, so it is likely that this figure has gotten worse since 2010 (Barton, 2014). This is used as half of the Food Environment Index, so, as McLennan County is very close to the average for this piece of data, it is fair to conclude that this statistic is not what is keeping the county below the rest of Texas. Unless this percentage has increased due to the recent movement of grocery stores, McLennan County’s percentage of the population with low income and low access to grocery stores is near average for counties in Texas.

Food Insecurity

For 2014, food insecurity was measured as 19.8% of people living in McLennan County lack access to a reliable source of food throughout the year. The Robert Wood Johnson Foundation County Health Rankings and Roadmaps used a 2-stage fixed effect model to determine this percentage from data from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey (“Food Environment Index Description,” 2014). The average for this data of all counties in Texas is at 16.26%, with a standard deviation of 2.71, which indicates that 9.51% of Texas counties have worse food security, meaning a higher percentage of people living without access to a reliable food source, than in McLennan County. McLennan County is in the worst 10% of counties in Texas for food security, a figure that must be focused on for improvement as Prosper Waco shapes and move towards its goals.

This information for food insecurity, along with the limited access to healthy foods figure previously explained, was used to determine the Food Environment Index, which equally weighs the two percentages and places them on a scale from zero to 10 to compare counties across the country. As McLennan County is well below the average for food security, in order to improve the Food Environment Index of the community, it makes sense to focus on improving food security and finding ways for more people in McLennan County to have access to a reliable food source all year.

Alternatives to the Food Environment Index and Food Insecurity

Researchers in the field are skeptical of food insecurity as an accurate measure of access to food and hunger in the United States because if someone is asked in a survey if

they feel secure, he or she will probably answer that they do not feel secure even if they have a reliable food source from a food pantry, with a meal provider service, or through SNAP (Kathy Krey, personal communication, 2015). A better value to use is food insufficiency, which is not yet measured nationally, but is a more narrow term that only includes households with too little food intake among adults or children in the household (Heflin & Ziliak, 2008). Other factors that can be used to measure access to food in McLennan County and the efficacy of food provision programs in Waco include participation rates, increased access points, community partners, pounds of food given, and enrollment numbers (Krey, personal communication, 2015).

Holistically, Prosper Waco can use the food insufficiency metric to measure the effect that the programs are having on the overall access to food for people in McLennan County, which is why I would recommend using food insufficiency for this metric instead of the Food Environment Index or food insecurity. This metric has not been collected or evaluated in McLennan County in the past, so once it is determined and the data is collected, Prosper Waco can determine the appropriate numerical goals to set.

Community Wellness

Physical Activity

The percentage of physical inactivity is measured as the percent of adults over 20 years old who partake in no physical activity in their leisure time. According to the Center for Disease Control (CDC) and Prevention's Diabetes Interactive Atlas, 26.1% of adults were inactive in McLennan County in 2011. This statistic is calculated using data from the CDC's Behavior Risk Factor Surveillance System (Centers for Disease Control

and Prevention, 2013). This value has fluctuated since 2004 between 23.9% and 30.6%, as shown in Appendix B, but shows no significant likelihood to increase or decrease in the coming years based on my analysis of the data from the Center for Disease Control. The percent of physical activity will likely remain at about 26% in the foreseeable future.

The Robert Wood Johnson Foundation's data for physical inactivity has 24.7% of the population in Waco without leisure-time physical activity for 2014, with a z-score of -1.17, which means that only 14.23% of counties in Texas have less physical inactivity ("McLennan, Texas," 2014). Therefore, McLennan County is in the top 15% of counties for percentage of physical activity in all of Texas, so physical inactivity is not a huge problem in Waco compared to other parts of Texas.

Access to Exercise Opportunities

Access to exercise opportunities measures the percent of people in McLennan County residing in a census block less than half a mile from a park or within one mile of a recreational facility. Recreational facilities are considered all businesses, such as gyms, community centers, dance studios, or pools, with the NAICS code 713940 ("Access to Exercise Opportunities Description," 2014). According to the County Health Rankings and Roadmaps, 51.75% of McLennan County residents had access to exercise opportunities in 2014 by this definition, as obtained from data from the National Diabetes Surveillance System and U.S. Census Bureau's Population Estimates Program. Counties in the United States with the most access to exercise opportunities have about 85%, and the overall average in Texas for 2014 was 45.76% of people living with access to exercise opportunities ("McLennan, Texas," 2014). This indicates that McLennan County

is doing better than 59.87% of counties in Texas regarding access to exercise opportunities.

These metrics are useful when considering the health of the community, but part of Prosper Waco's overall goals is to measure the efficacy of local nonprofit and community improvement efforts. These metrics are more reflective of how healthy Waco's culture is and comes from the market demand for recreational facilities; they are not a result of efforts to improve the wellbeing of McLennan County. In order to focus more on the other three areas (healthcare, hunger, and teen pregnancy), it might be beneficial for Prosper Waco to eliminate this goal.

Teen Pregnancy

According to a report on Teenage Pregnancy conducted at the Bush School of Government and Public Service, there were 46.9 pregnancies for every 1,000 females between the ages of 15 and 19 in McLennan County in 2011. With the national average at 31.3 pregnancies per 1,000 females between the ages of 15 and 19, McLennan County is well above most counties in the rate of teen pregnancies (Bitter, Fickes, Mijangos, Yun, & Zhang, n.d.). Ideally, this teen pregnancy rate in Waco should be lowered to at least the national average as soon as possible, and Prosper Waco should set goals accordingly.

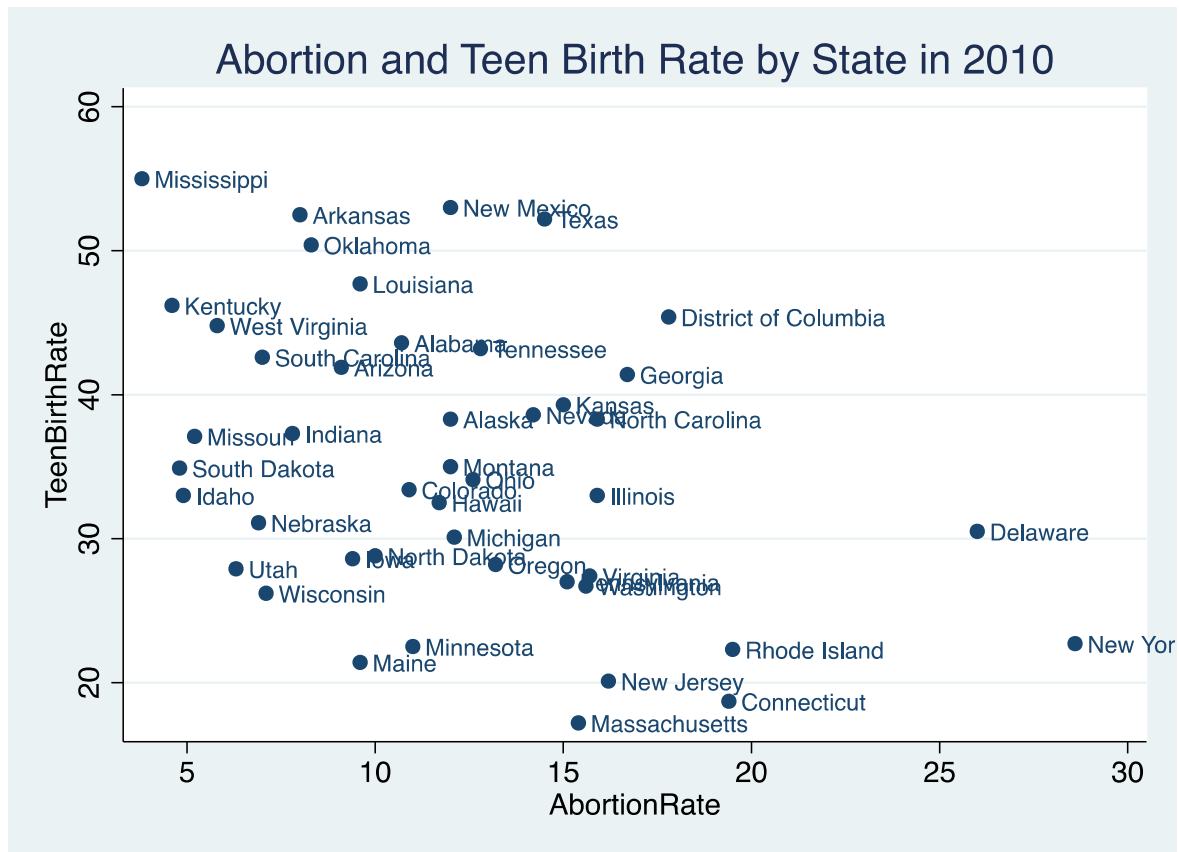
According to the Robert Wood Foundation's County Rankings and Roadmaps, the teen birth rate in McLennan County in 2014 was 51.26 births per 1,000 female population, ages 15 through 19, as drawn from data on deaths and births by the National Vital Statistics System ("McLennan, Texas," 2014). Compared to the average for all counties in Texas of 64.11 births per 1,000 teenage female population, this number is

lower than average. With a standard deviation of 19.79, we can conclude that 25.78% of Texas counties have lower teen birth rates than McLennan County.

Despite this relatively good statistic compared to other Texas counties, attempts should be made to decrease teen pregnancies, as this is a statistic that can always be improved. The top performing counties in the United States for low teen pregnancy rates have rates of about 20 births per 1,000 females between the ages of 15 and 19, so it is possible to have a significantly lower value for this statistic. A reasonable goal for this category would be somewhere between 30 and 40 births per 1,000 female teenagers.

Abortions

Something to consider when focusing on lowering the statistic of teen birth rates is the effect that it might have on abortion rates. Using data and reports from the Center for Disease Control and Prevention that I include in Appendix C, I found the relationship between abortion rates, meaning the number of abortions per 1,000 women ages 15-44 years, and teen birth rates, meaning the number of births per 1,000 women ages 15-19 years, to be negatively correlated with statistical significance (Martin et al., 2012; Pazol, Creanga, Burley, Hayes, & Jamieson, 2013). Comparing these data points, I found it statistically significant that states with lower teen birth rates tend to have higher abortion rates, indicating an inverse relationship between abortion and teen births.



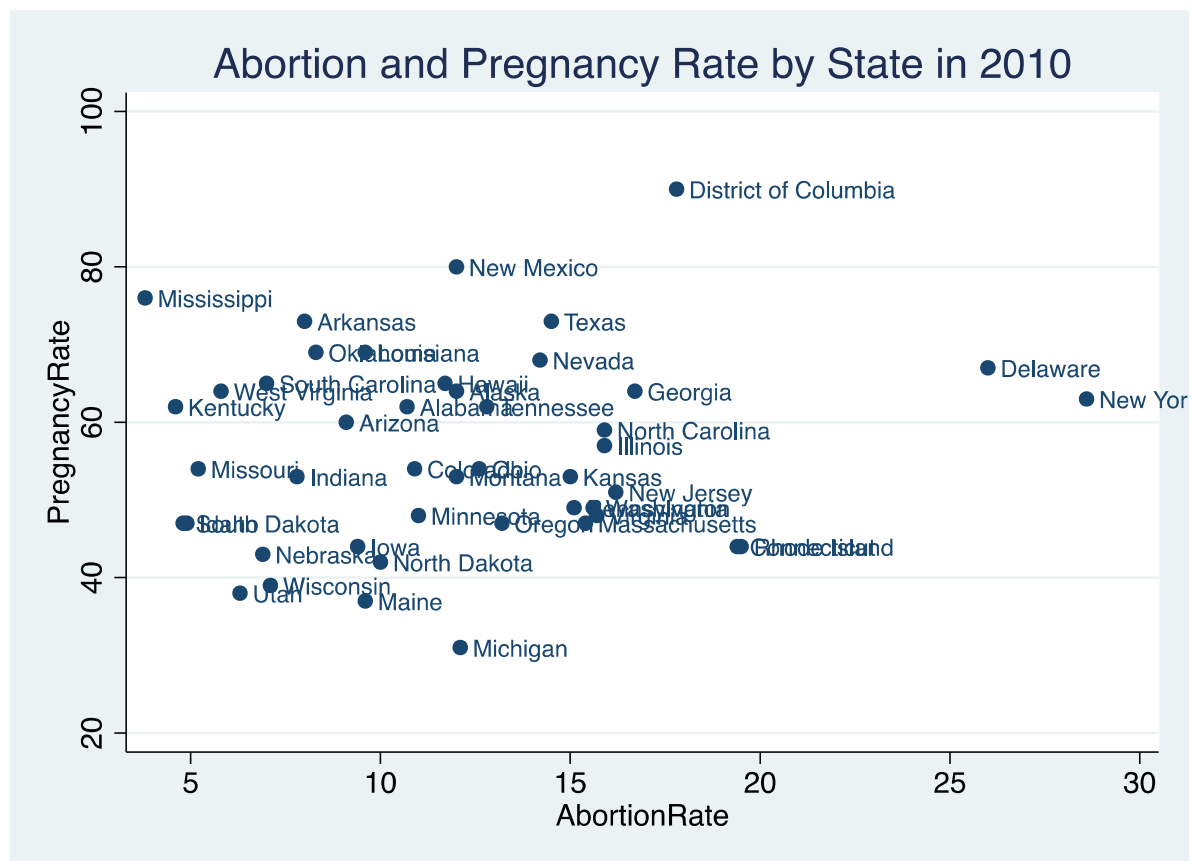
With only about 15 percent of the variation of the teen birth rate of a state explained by the abortion rate of a state, it is clear that abortion rates cannot explain all the differences in teen birth rates across states. Although there are other variables at hand, this analysis suggests that for every increase in the abortion rate by 10 abortions for every thousand women, the teen birth rate will decrease by seven births per thousand women. This is modeled by the following formula, significant with a p-value of .01:

$$y = -.7134876x + 43.73073$$

For this data, we can conclude that there is a negative relationship between a teen birth rate and an abortion rate with 99% confidence. Because of this, although lowering the teen birth rate is naturally an excellent goal, Prosper Waco should be careful about using

this metric to measure their goals in teen pregnancy, as it may have some unintended consequences due to its link to abortions.

Instead of teen birth rates, teen pregnancy rates are a better metric to use, as there is a positive correlation between teen pregnancy rates and abortion rates instead of an inverse relationship. This indicates that states with lower teen pregnancy rates have lower abortion rates, as determined from state based 2010 data on U.S. teenage pregnancies from the Guttmacher Institute and the same abortion data from the Center for Disease Control and Prevention (Pazol et al., 2013; Kost & Henshaw, 2014).



As is evidenced, my analysis of this data resulted in the conclusion that there is a positive correlation between teen pregnancy rates and abortion rates among states, with 90% confidence. Since only about 7% of the variation in the teen pregnancy rate can be

explained by the abortion rate, it is clear that there are other variables affecting teen pregnancy rates, but the statistically significant outcome of my regression indicates that abortion has a role to play. We can conclude that states with higher teen pregnancy rates tend to have higher abortion rates, but states with higher abortion rates tend to have lower teen birth rates.

Thus, in order to prevent using statistics that could unintentionally encourage the increase in the number of abortions, Prosper Waco should focus on teen pregnancy rates instead of teen birth rates. Unfortunately, this data is not collected at the county level.

Conclusion

The focus of improving health in Waco is on increasing access to healthcare, decreasing food insufficiency, and decreasing teen pregnancy. These three areas cover the scope of health that nonprofits and community development programs are working to improve. Instead of having the focus on decreasing the percentage of people experiencing food insecurity, food insufficiency is a better measure of people's hunger and the impact that food banks, school lunch programs, SNAP, and other food assistance programs are having on people's access to food. Waco has about average community wellness compared to the rest of Texas based on physical activity and access to exercise opportunities, so this area is not one that Prosper Waco needs to focus on. Teen birth rates are better than most Texas counties, but this is always a statistic that can be improved upon. It is hard to predict the future of health insurance with the recent and possible future policy changes, so setting specific goals for that statistic is difficult at this point, but it is a good measure to continue to track and try to improve.

CHAPTER FOUR

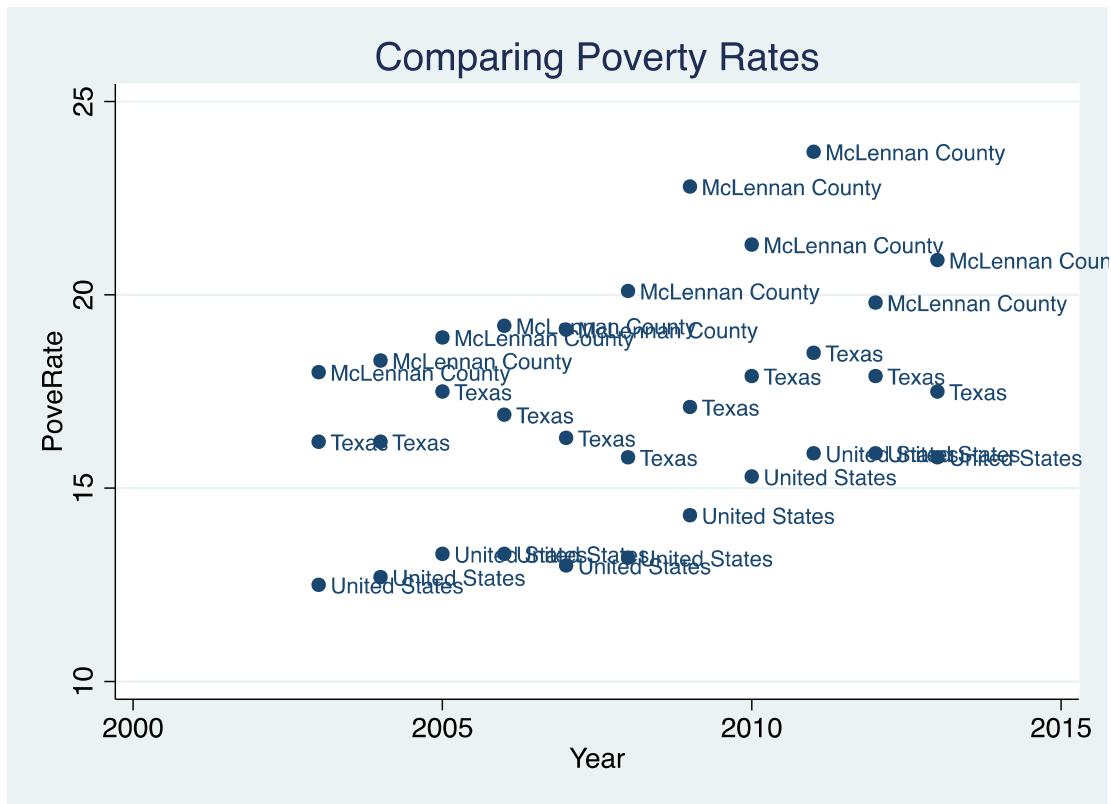
Financial Security

Introduction

Financial Security is the most common way to measure poverty, be it through income, employment status, or potential for financial mobility. Because of this, the metrics for goals that Prosper Waco has in this area are significantly more accessible and easily determined. Economic data is readily collected and analyzed through the Bureau of Economic Analysis, Bureau of Labor Statistics, and Bureau of the Census. There is copious data relating to the goals of economic independence through income level and employment, as can be measured through labor force participation rates and unemployment rates. Prosper Waco's third goal for financial security is concerning the 8th grade cohort completion rate, which measures students' potential for success and achievement that would allow for economic mobility and end the cycle of poverty. By increasing the rate of post-graduate achievements for people who begin in impoverished situations as children in Waco, Prosper Waco is giving more students economic freedom by directing them towards the opportunities that would allow them work in any job at whatever salary level they desire. Through accurately measuring the financial security goals, Prosper Waco can get an all-encompassing understanding of the community's economic situation.

Economic Independence

Prosper Waco's first goal for financial security is to increase the number of households in Waco with income exceeding twice the Federal Poverty Level. From 2007-2012, the percentage of families living within the city of Waco with income exceeding twice the Federal Poverty Level was just over 50% according to research done by the Upjohn Institute (Erickcek et al., 2016). Unfortunately, data on the number of households in Waco with income exceeding twice the Federal Poverty Level is not released annually. Prosper Waco would benefit from using data to measure their goals that is released annually and easy to access, especially considering that data on poverty and income exists and can accurately measure their goals just as well as data that is not regularly reported.



(U.S. Census Bureau, 2014)

The percentage of people in McLennan County living below the federal poverty level has increased since the early 2000s, and this percentage has consistently remained above the average percentage for all of Texas, which has consistently remained above the average for the United States. These differences between the means are statistically significant for the United States, Texas, and McLennan County, indicating how much higher the poverty rate is in McLennan County, as it is higher than the state of Texas as a whole and because Texas has a statistically significant higher poverty rate than the United States. As a city with a significantly higher than average percentage of people living in poverty, it is essential that Prosper Waco focus on this particular statistic.

Based on my analysis of this data from the U.S. Census Bureau, with details that can be found in Appendix D, the poverty rate in McLennan County is, on average, increasing by .39 percentage points each year at a 95% significance level. It is important to note that this data comes from the Model-based Small Area Income and Poverty Estimates (SAIPE) Program of the United States Census Bureau, which does not collect enough data to truly create accurate annual pictures of the poverty rate at the county level. There is enough data for the state and national level, but the county level data on poverty is all based on statistical estimates. Therefore, I must consider the margin of error in my analysis. For example, the 2013 percentage of people in poverty in McLennan County was estimated to be at 20.9%, but the report claims there is a 90% chance that the true value of the mean falls between 18.6% and 23.2% of the population falling below the federal poverty line (U.S. Census Bureau, 2014). Unfortunately, this is a lot of variation for a statistic, but such variability is inevitable in measuring income and labor statistics.

In order to account for the variability, I would recommend for Prosper Waco to set a goal for a low value that should be in the 90% confidence level instead of a specific mean estimate to fall below. Therefore, instead of having a specific goal of less than 17% of the population of McLennan County being below the Federal Poverty Line, the goal should be to have the reported 90% confidence interval, meaning the range of values between the 90% CI lower and upper bounds, contain the value of 15% or less by 2020. As the confidence interval (CI) falls 2.3 percentage points above and below the mean for Prosper Waco, having the confidence interval with a lower bound of around 15% would suggest that the mean for McLennan County falls around 17.3%, which would put McLennan County right below the Texas average of 17.5% in 2013. In the long term, Prosper Waco should set goals that bring McLennan County closer to or below the national average of 15.8% of people living in poverty. The short-term goals compared to the current values are summarized in the following chart:

Location and Year	Poverty estimate	90% CI lower bound	90% CI upper bound
McLennan County: 2013	20.9	18.6	23.2
McLennan County: Goals for 2020	~17	< 15	< 20
Texas: 2013	17.5	17.3	17.7
United States: 2013	15.8	15.7	15.9

In order for the citizens of Waco to prosper, the city must move away from having an above average percentage of the population below the poverty level to a below average. Once this goal is achieved and people are moved out of poverty, Prosper Waco

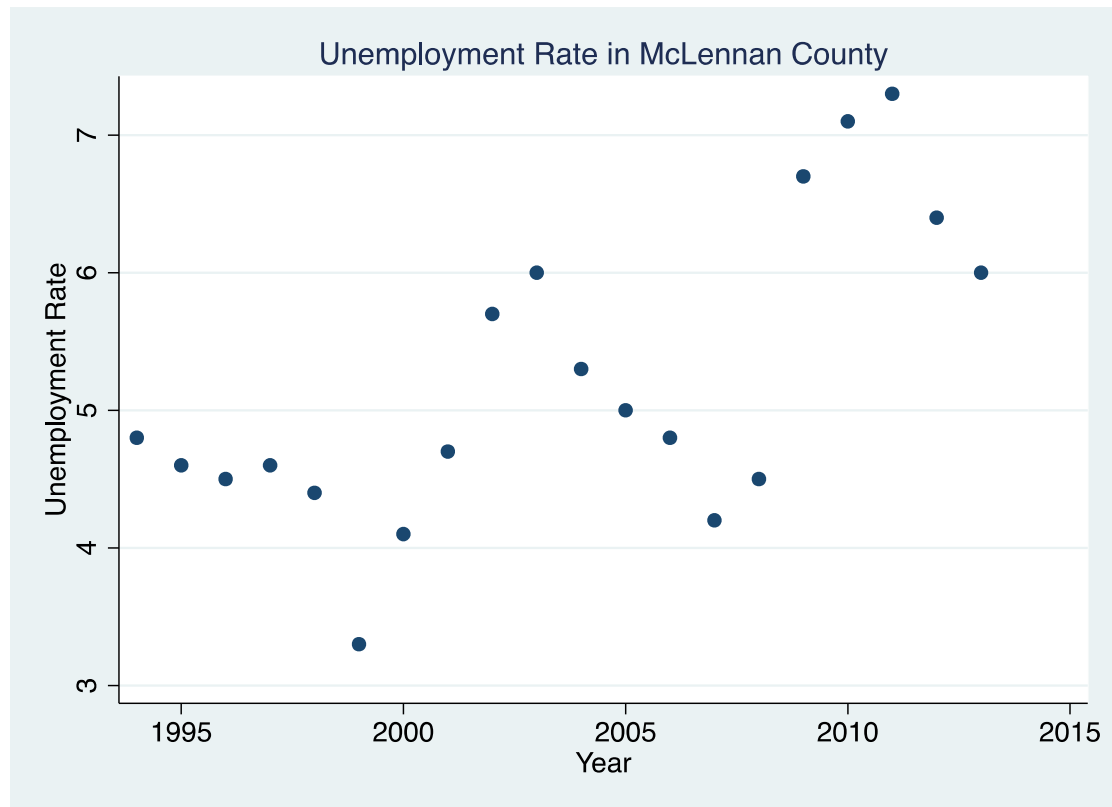
can change its focus to increasing the percent of households in Waco with income exceeding twice the federal poverty level or to decrease the supplemental poverty measure. Research has shown that the official poverty measure is not sufficient in measuring poverty, and because of this, the U.S. Census Bureau created the Supplemental Poverty Measure in 2013. This metric is new and has not been measured or estimated at all at the county level yet, but will likely begin to be studied in the near future (Short, 2014). Once McLennan County achieves its goals for the Federal Poverty Level, Prosper Waco can transition to using this Supplemental Poverty Measure to improve the financial security of more people in Waco and expand its programs further for continued community improvement.

Employment

One way to measure improvement in Waco would be through increasing the number of people with jobs. Prosper Waco hopes to measure this statistic through increased labor force participation and unemployment rates for 16 to 24 year olds, but unfortunately this specific data is not collected and reported by the U. S. Census or Bureau of Labor Statistics. In fact, labor force participation rates are not measured on the county level at all. All this data is only measured at the state and national level when one is breaking up the data into different age groups and specifically looking at the 16 to 24 year olds.

If Prosper Waco is determined to maintain the goal of measuring unemployment rates and labor force participation rates in McLennan County, Prosper Waco must come up with a way to get this data and create this measure. To create less work for Prosper Waco, I would recommend simplifying this goal to decreasing the unemployment rate in

McLennan County, as this data is annually accessible from the U. S. Bureau of Labor Statistics. The following chart summarizes the past of the unemployment rate in McLennan County based on this data (“Local Area Unemployment Statistics,” n.d.).



In 2013, the unemployment rate in McLennan County was at 6%, all of Texas was also at 6%, and in the United States as 7.3% (“Local Area Unemployment Statistics,” n.d., “Unemployment Rates for States,” n.d.). With an exactly average unemployment rate for the state of Texas and with Texas having a better unemployment rate than the national average, McLennan County is not in a particularly bad situation for this particular statistic. It would be beneficial, though to aim for even lower unemployment rates, as it is clear from the graph above that much lower unemployment rates were previously much more common, so seeking lower unemployment rates is a tangible goal.

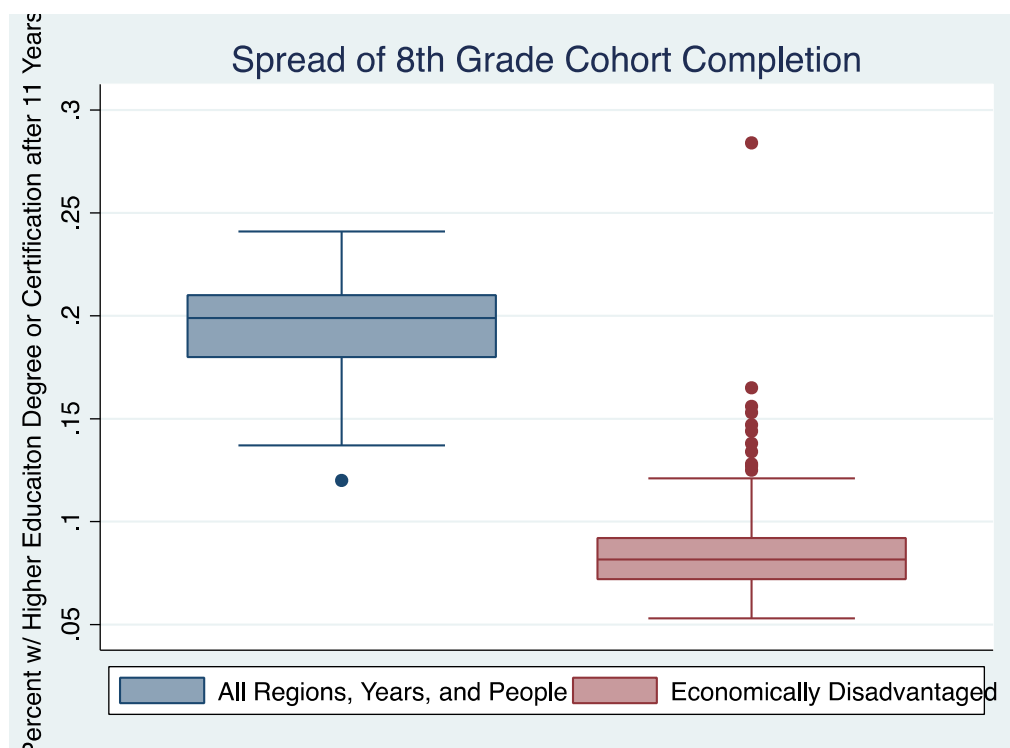
A more reasonable goal would be to decrease the unemployment rate to under 5% by 2020.

Post-Graduation Achievement

With the goal of increasing the post-secondary school graduation achievements of students in Waco, the metric that Prosper Waco has suggested using for this area is the 8th grade cohort completion rate. The specific goal is to double the economically disadvantaged, meaning members of households with the required income for free or reduced-price lunches, students' post-graduation achievements. The rate of 8th grade cohort completion is the percentage of students enrolled in 8th grade who earned a post-secondary credential of some sort within 11 years of finishing 8th grade. This can include certificates or degrees of any sort from any college or university in Texas. It does not include students who moved out of the state or received degrees or certificates from colleges or universities outside of Texas. Based on the data from the National Student Clearinghouse, the current rate of 8th grade cohort completion, for students who are economically disadvantaged is at 10.3 percent ("Higher Ed Outcomes," 2014).

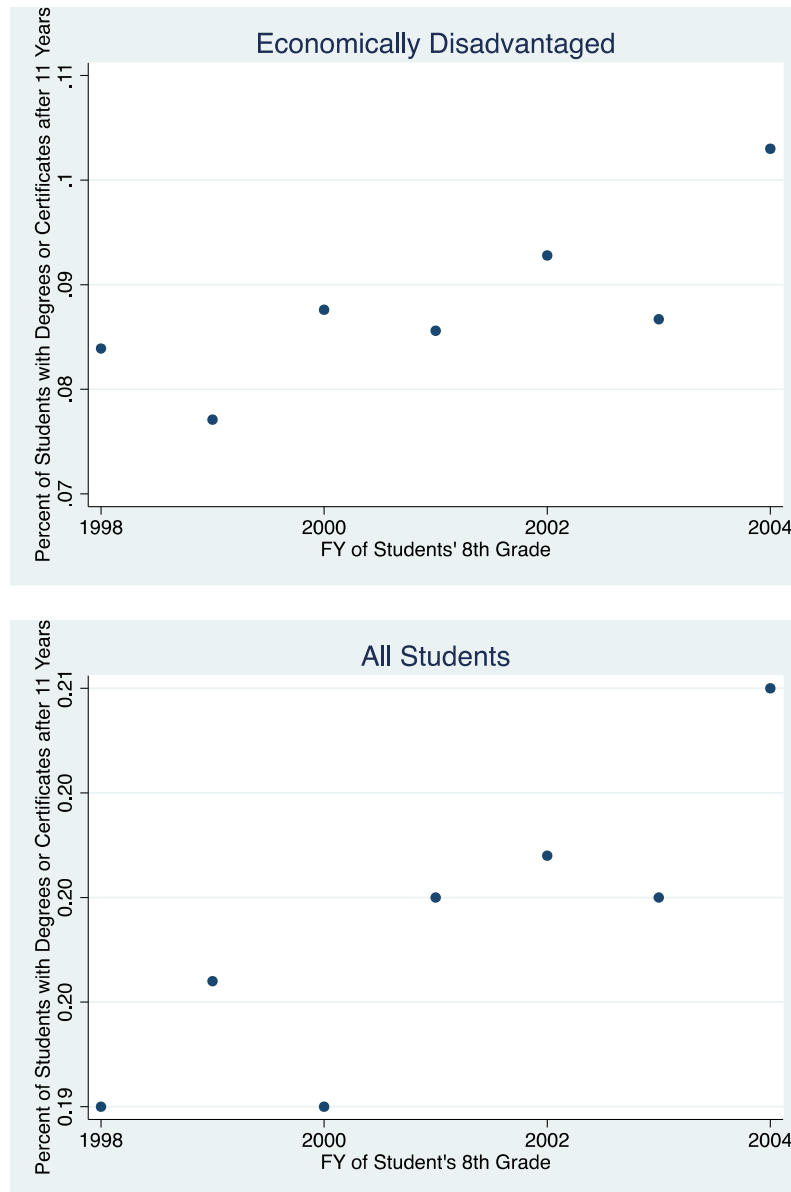
Because the data takes 11 years to determine, we only have data from students who graduated from the 8th grade between 1997 and 2003 at this point, which means the information about the students was collected between 2008 and 2014. From my analysis on the NSC's data, it is expected that this number may grow to 18 percent by the time the data from the students who graduated from the 8th grade in 2008 is collected in 2019, but this is not a very reliable prediction as there is not enough data to speak with much confidence at this point.

With Prosper Waco's desire to use the economically disadvantaged cohort completion rates in Waco, I compared these rates to the overall rates and compared the Waco Teachers' Region 12 to the rest of Texas, and my statistical analysis explained below is detailed in Appendix E. First, it is important to note the clear, statistically significant difference between the means of the percentage of all people compared to the percentage of the economically disadvantaged, as shown in the boxplot.



The economically disadvantaged data in the Waco region results in a regression equation with the year for x and the 8th grade cohort completion percentage for y is $y = .0029179x - 5.750532$, while the same equation for all students is similar as $y = .0028571x - 5.518857$. Both equations are statistically significant and different, but their similar slope indicates that each year, the 8th grade cohort completion rates increases

by .29 percentage points for both the economically disadvantaged and all students alike. Therefore, it will take over three years for this data to increase by one percentage point. This is demonstrated in the graphs below, which includes data for the Waco region.



Since the Economically Disadvantaged data follows a linear trend more strongly, as evidenced by these graphs, creating projects for the economically disadvantaged data makes more sense, which is convenient as this is the metric that Prosper Waco wants to use. If the data continues in the trend it has been over the past six years, the 8th grade

cohort completion percentage will be at 11.44% for the students in Waco who are economically disadvantaged and attended 8th grade in FY 2010, which is the study that will conclude in 2020, after the 11 years that are required to have 8th grade cohort completion data.

Prosper Waco hopes to increase the rate at which the economically disadvantaged population's 8th grade cohort completion rate rises. The idea is to increase retention of students who are low income in schools because it will increase their earning potential. Prosper Waco's preliminary goal was to double the economically disadvantaged student's cohort completion rate. With the rate currently at 10.3% and the slow rate at which this data has been growing over the past several years, my projections indicate that this figure will not double to 20.6% until 2052, when the data for students who were in 8th grade in fiscal year 2042 have completed the study ("Higher Ed Outcomes," 2014). This is much farther in the future than Prosper Waco wants to focus on. The 8th grade cohort completion data would have to start increasing at such a significantly faster pace for the number to double in a reasonable amount of time, that this goal is completely unattainable.

Instead, Prosper Waco can set a more reasonable goal that is still slightly above the expected value so it would require improvement. I recommend focusing on the class that is currently in 8th grade, fiscal year 2015, and thus setting goals for the data that will conclude in 2025 after 11 years of these students' lives. Based on the current trend of the data and my projections, the 8th grade cohort completion rate should be at about 12.9% for the 2015 students. Therefore, to create goals that require working hard to keep more economically disadvantaged students in school, I would recommend the goal of 15% of

these students who are currently in 8th grade to have obtained a degree or certificate from a post-secondary institution by the end of 2025.

Conclusion

Measuring the financial situation of the population of Waco is straightforward and simple through data provided by the U. S. Census and Department of Labor as well as various other organizations that measure elements of financial security. The percentage of the population living below the poverty, the percentage of the labor force that is unemployed, and the percentage of economically disadvantaged 8th grade students who go on to receive post-secondary credentials within 11 years all encompass different pieces of financial security. Poverty, employment, and educational attainment are excellent starting points for measuring financial security in Waco, but I do not think these metrics are comprehensive enough. Prosper Waco should look at the mean income and the income distribution of the city of Waco to get a holistic picture of financial security in Waco.

CHAPTER FIVE

Conclusion

I have reached conclusions about the metrics that I would recommend Prosper Waco use through analysis of the preliminary goals, statistical analysis, and extensive research on possible metrics. These are detailed and explained throughout the paper, and I summarize the goals and my recommended metrics in the following list, with three goals for each of the three areas in which Prosper Waco is hoping to see improvement:

1. Increase the percentage of children arriving at school ready to learn, as measured in readiness to read through Istation or in readiness to read, learn mathematics, and participate socially in the classroom through Ready, Set, K!. After using the metric for sometime, set reasonable quantitative goals accordingly.
2. Increase the percentage of students' proficient in reading at a 3rd grade level, as measured through the STAAR test in the 3rd grade classrooms. Determine specific quantitative goals through looking at individual schools' data.
3. Increase percentage of the population over 25 with a completed Associate's degree or higher (which is currently at 31.6%) to be at about 40% by 2030.
4. Decrease the percentage of people ages 65 and under without health insurance (which is currently at 24.4%) to 15% by 2020. Alternatively, decrease the percentage of the population who could not see a doctor due to cost in the last year, which is currently at about 22%.
5. Determine the best way to measure the "food insufficiency" statistic, most likely through survey, and set specific quantitative goals to decrease this metric.

6. Reduce the teen pregnancy rate from 46.9 pregnancies for every 1,000 females between the ages of 15 and 19 in McLennan County in 2011 to a goal of the national average of 31.3 pregnancies by 2020.
7. Decrease the percentage of households in Waco with an income level below the poverty level (which is currently at 20.9%) to about 17% by 2020.
8. Decrease the unemployment rate in Waco (which is currently at 6%) to less than 5% by 2020.
9. Increase the 8th grade cohort completion rate: For the class graduating 8th grade in 2015, to have 15% of the economically disadvantaged students in Waco to have obtained a degree or certificate from a post-secondary institution by the end of 2025, 11 years after 8th grade.

Questions for Further Study

Undertaking this huge project researching many diverse fields has naturally opened up more questions than it has answered. My thesis is a beginning point, not an ending point, for establishing the goals that Prosper Waco should use to quantify the city's community improvement. Here, I list questions that my paper has opened up for further research.

1. Once Istation is established throughout the school systems in Waco, what kind of results are we getting for students' readiness to read? What kind of data can Waco expect, and what should be our goals?
2. How can Waco schools begin the transition into implementing the Ready, Set, K! curriculum?

3. Once Ready, Set, K! has been implemented and used in schools throughout Waco for several years, how is Waco doing in readiness to learn and what kind of quantitative goals would be reasonable to set?
4. How do different schools compare in 3rd grade reading proficiency levels? What schools needs the most help and improvement?
5. What programs are most effective in helping students learn to read?
6. What would be the best way for Waco to create a system to measure career readiness?
7. What is the relationship between the percent of the population without health insurance and the percent of the population who could not see a doctor due to cost in the last year? How many people fit into one category, but not the other?
8. How has grocery store movement affected the percent of people living with low income and low access to grocery stores?
9. How can food insufficiency best be measured?
10. With high diabetes rates, high poverty rates, and low access to healthcare rates, how is it possible that Waco has such high physical activity and access to exercise opportunities statistics? How is it that the community has access to exercise, and exercises regularly, but is still unhealthy?
11. How can Prosper Waco get more accurate county level income data?
12. Is there a way to get enough data on the specific unemployment rates of 16-24 year olds to draw statistically valid conclusions?

13. How can Prosper Waco measure income distributions to get a holistic picture of financial security in Waco? What goals can be set for improving the income distribution?
14. How are individual programs and organizations impacting these statistics in Waco? Can we see the direct influence of work being done in these statistics?

Limitations of Metrics

Prosper Waco is undertaking a huge, difficult yet rewarding project as they attempt to quantify community improvement in the city of Waco. Even with my adjustments and suggestions, the metrics are not perfect measures of the goals and the data available does not perfectly represent the metrics. When working with data in community development and poverty alleviation, it is essential to be aware of and note the limitations of one's efforts. Much of the data that I worked with for this project was comprised of estimates based on a very small sample size or did not have the longevity to hold much significance. Therefore, there is always a chance that projections and analysis are entirely incorrect, simply due to random error. With the realities of the limitations of the metrics and data, I recommend that Prosper Waco use the goals that I outlined and explained throughout this paper.

APPENDICES

APPENDIX A

Educational Attainment Comparisons

Percent of Population (25 years and over) with The Following Educational Attainment Levels by Year in McLennan County, Texas, and the United States

Place	Year	less than 9th grade	Some high school	High School Diploma	Some College (no degree)	Associate's	Bachelor's	Graduate or Professional	Associate's Degree or Higher
McLennan	2013	6.7	9.5	28.5	23.6	10.8	13.3	7.5	31.6
McLennan	2012	7.1	9.5	27.7	24	9.3	14.8	7.5	31.6
McLennan	2011	7.7	10.3	26.9	23.4	9.6	15	7.1	31.7
McLennan	2010	7	11.1	29.2	22.3	7.9	15.3	7.3	30.5
McLennan	2009	8.4	11.2	28.3	22.3	8.7	13.8	7.3	29.8
McLennan	2008	7.4	11.3	28.5	23.8	8	14.1	6.9	29
McLennan	2007	8.3	12.8	28	22	8.5	13.7	6.7	28.9
McLennan	2006	10	11.7	30.9	20.6	8.1	11.8	6.9	26.8
Texas	2013	9.1	9	25.2	22.6	6.5	18.3	9.3	34.1
Texas	2012	9.2	9.4	25.2	22.9	6.6	17.7	9	33.3
Texas	2011	9.5	9.4	25.5	22.6	6.5	17.7	8.7	32.9
Texas	2010	9.7	9.6	25.6	22.8	6.3	17.3	8.6	32.2
Texas	2009	10.2	10	25.4	22.8	6.1	17	8.5	31.6
Texas	2008	10.4	10	25.4	22.6	6.3	17.1	8.3	31.7
Texas	2007	10.4	10.5	27.1	20.6	6.2	16.9	8.2	31.3
Texas	2006	6.3	9.1	30.3	20.1	8	16.9	9.3	34.2
USA	2013	5.8	7.6	27.8	21.1	8.1	18.4	11.2	37.7
USA	2012	5.8	7.9	28	21.3	8	18.2	10.9	37.1
USA	2011	6	8.1	28.4	21.2	7.8	17.9	10.6	36.3
USA	2010	6.1	8.3	28.5	21.3	7.6	17.7	10.4	35.7
USA	2009	6.3	8.5	28.5	21.3	7.5	17.6	10.3	35.4
USA	2008	6.4	8.7	28.5	21.3	7.5	17.5	10.2	35.2
USA	2007	6.4	9.1	30.1	19.5	7.4	17.4	10.1	34.9
USA	2006	6.5	9.4	30.2	19.5	7.4	17.1	9.9	34.4

Average Percent of Population (25 years and over) with The Following Educational Attainment Levels by Year in McLennan County, Texas, and the United States
For 2006-2013

Place	less than 9th grade	Some high school	High School Diploma	Some College (no degree)	Associate's	Bachelor's	Graduate or Professional	Associate's Degree or Higher
McLennan	7.825	10.925	28.5	22.75	8.8625	13.975	7.15	29.9875
Texas	9.35	9.625	26.2125	22.125	6.5625	17.3625	8.7375	32.6625
USA	6.1625	8.45	28.75	20.8125	7.6625	17.725	10.45	35.8375

-> Place = McLennanCounty

Variable	Obs	Mean	Std. Err.	[95% Conf. Interval]	
-----+					
ABGP	8	29.9875	.6086981	28.54816	31.42684

-> Place = Texas

Variable	Obs	Mean	Std. Err.	[95% Conf. Interval]	
-----+					
ABGP	8	32.6625	.4013092	31.71355	33.61145

-> Place = United States

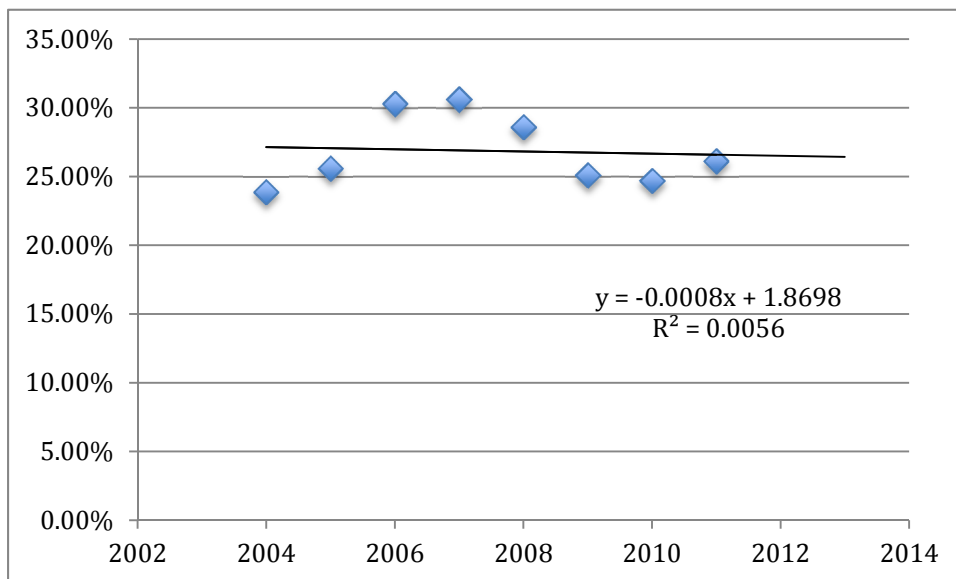
Variable	Obs	Mean	Std. Err.	[95% Conf. Interval]	
-----+					
ABGP	8	35.8375	.3972843	34.89807	36.77693

("Educational Attainment ACS," n.d.)

APPENDIX B

Physical Inactivity in McLennan County

year	physical inactivity
2004	23.90%
2005	25.60%
2006	30.30%
2007	30.60%
2008	28.60%
2009	25.10%
2010	24.70%
2011	26.10%



This regression is not statistically significant.

(Centers for Disease Control and Prevention, 2013)

APPENDIX C

Analysis of Birth, Abortion, and Pregnancy Data

Source	SS	df	MS	Number of obs =	45
Model	638.95699	1	638.95699	F(1, 43) =	7.34
Residual	3744.13279	43	87.0728555	Prob > F =	0.0097
				R-squared =	0.1458
				Adj R-squared =	0.1259
Total	4383.08978	44	99.6156768	Root MSE =	9.3313

TeenBirthR~e	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AbortionRate	-.7134876	.2633856	-2.71	0.010	-1.244655	-.1823199
_cons	43.73073	3.45694	12.65	0.000	36.75914	50.70231

Source	SS	df	MS	Number of obs =	45
Model	676.42986	1	676.42986	F(1, 43) =	3.38
Residual	8602.77014	43	200.064422	Prob > F =	0.0729
				R-squared =	0.0729
				Adj R-squared =	0.0513
Total	9279.2	44	210.890909	Root MSE =	14.144

PregnancyR~e	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AbortionRate	.7341114	.3992414	1.84	0.073	-.0710355	1.539258
_cons	45.71258	5.240049	8.72	0.000	35.14501	56.28014

State	PregnancyRate	AbortionRate	TeenBirthRate
Alabama	62	10.7	43.6
Alaska	64	12	38.3
Arizona	60	9.1	41.9
Arkansas	73	8	52.5
Colorado	54	10.9	33.4
Connecticut	44	19.4	18.7
Delaware	67	26	30.5
District of Columbia	90	17.8	45.4
Georgia	64	16.7	41.4
Hawaii	65	11.7	32.5
Idaho	47	4.9	33
Illinois	57	15.9	33
Indiana	53	7.8	37.3
Iowa	44	9.4	28.6
Kansas	53	15	39.3
Kentucky	62	4.6	46.2
Louisiana	69	9.6	47.7
Maine	37	9.6	21.4
Massachusetts	47	15.4	17.2
Michigan	31	12.1	30.1
Minnesota	48	11	22.5
Mississippi	76	3.8	55
Missouri	54	5.2	37.1
Montana	53	12	35
Nebraska	43	6.9	31.1
Nevada	68	14.2	38.6
New Jersey	51	16.2	20.1
New Mexico	80	12	53
New York	63	28.6	22.7
North Carolina	59	15.9	38.3
North Dakota	42	10	28.8
Ohio	54	12.6	34.1
Oklahoma	69	8.3	50.4
Oregon	47	13.2	28.2
Pennsylvania	49	15.1	27
Rhode Island	44	19.5	22.3
South Carolina	65	7	42.6
South Dakota	47	4.8	34.9
Tennessee	62	12.8	43.2
Texas	73	14.5	52.2
Utah	38	6.3	27.9
Virginia	48	15.7	27.4
Washington	49	15.6	26.7
West Virginia	64	5.8	44.8
Wisconsin	39	7.1	26.2

APPENDIX D

Percentage of Population Living Below the Federal Poverty Line

McLennan County Poverty Rate Regression:

PoveRate	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Year	.3890909	.1293964	3.01	0.015	.0963759	.681806
_cons	-761.1036	259.8283	-2.93	0.017	-1348.876	-173.3311

```
. xtset StateFIPScore
      panel variable:  StateFIPScore (unbalanced)

. xtset CountyFIPScore
      panel variable:  CountyFIPScore (unbalanced)
```

Texas Poverty Rate Regression:

```
corr(u_i, Xb) = 0.0000          F(1,2549) = 201.26
                                Prob > F   = 0.0000
```

PoveRate	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Year	.1421426	.0100196	14.19	0.000	.1224952	.16179
_cons	-267.5822	20.11938	-13.30	0.000	-307.0342	-228.1302
sigma_u	5.6278237					
sigma_e	1.6780958					
rho	.91834921	(fraction of variance due to u_i)				

```
F test that all u_i=0:      F(254, 2549) = 123.72          Prob > F = 0.0000
```

APPENDIX E

8th Grade Cohort Completion

Mean of 8th Grade Cohort Completion Percentage for the 20 Different TEA Regions

Over	Mean	Std. Err.	[95% Conf. Interval]	
HigherEdDegOrCert				
1	.1768571	.0042952	.1683647	.1853496
2	.1701429	.0032836	.1636505	.1766352
3	.2215714	.0025247	.2165796	.2265632
4	.2001429	.0030113	.1941889	.2060968
5	.188	.0047006	.1787062	.1972938
6	.2055714	.0020914	.2014363	.2097066
7	.2028571	.0018571	.1991852	.206529
8	.194	.0036253	.1868321	.2011679
9	.208	.00579	.1965522	.2194478
10	.1835714	.0036112	.1764314	.1907114
11	.203	.0037097	.1956653	.2103347
12	.1982857	.0026701	.1930065	.2035649
13	.2091429	.0025017	.2041966	.2140892
14	.238	.0015275	.2349798	.2410202
15	.1945714	.0036375	.1873795	.2017634
16	.2091429	.004114	.2010087	.217277
17	.189	.0024004	.184254	.193746
18	.1657143	.0058948	.1540593	.1773693
19	.1492857	.0062286	.1369706	.1616008
20	.1634286	.0037724	.1559698	.1708874
EconDisavg				
1	.1472857	.004607	.1381768	.1563946
2	.0845	.003697	.0771903	.0918097
3	.0830429	.0023403	.0784156	.0876701
4	.0834857	.0037708	.0760301	.0909413
5	.0820857	.0037644	.0746428	.0895286
6	.0597	.0023696	.0550148	.0643852
7	.0828286	.0019767	.0789202	.0867369
8	.0908143	.0053415	.0802531	.1013755
9	.0855714	.0026814	.0802698	.090873
10	.0731	.0026297	.0679006	.0782994
11	.0727	.0034293	.0659197	.0794803
12	.0881	.0030519	.0820658	.0941342
13	.0570143	.0011989	.0546439	.0593847
14	.0992571	.0021828	.0949413	.103573
15	.087	.0048017	.0775061	.0964939
16	.0851143	.0060308	.0731903	.0970383
17	.0690714	.0033735	.0624013	.0757415
18	.0684	.0036806	.0611228	.0756772

Mean estimation Number of obs = **140**

(including all data for all years of tests in all 20 TEA regions)

Source	SS	df	MS	Number of obs =	7
Model	.000228571	1	.000228571	F(1, 5) =	16.13
Residual	.000070857	5	.000014171	Prob > F =	0.0102
				R-squared =	0.7634
				Adj R-squared =	0.7160
Total	.000299429	6	.000049905	Root MSE =	.00376

(for all students)

(for economically disadvantaged students)

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