Hello my name is Chase Stahl and today I am presenting my findings on the Tennessee Education Lottery Scholarship Bill’s Assessment.

A brief overview of the presentation includes current and proposed scholarship requirements. Next we will discuss some key statistics and the Bill’s effect through a cost analysis and an impact assessment. We will conclude the presentation with a summary and a reference slide.

The current scholarships require a minimum of a 3.0 GPA OR a minimum ACT score of a 21. The proposed bill would raise the minimum ACT score to a 23 or 24. The visualizations below include distributions of both scholarship requirements.

As we can see, the majority of the GPA’s fall above 3.0, with a 4.0 GPA being the most common GPA, also known as the mode of the distribution. Based on the current scholarship requirements, most students would be eligible based on GPA alone.

Looking at the ACT distribution, it appears to be normally distributed reflecting the bell shaped curve and peaking at an ACT score of 21. If we focus exclusively on the ACT score as the sole requirement for scholarship, it looks as though scholarship eligibility would be substantially reduced by increasing the scores to a 23 or a 24.

Moving on to key statistics an assumption was made regarding the data provided. It is assumed that the dataset contained the full list of scholarship applicants, with a grand total of 49,605 applicants.

There was an average GPA of 3.48, well above the GPA requirement and an Average ACT score of 22.91, just below the proposed changes.

Current requirements allow a 99.16% eligibility rate, of which only 335 students are ineligible. 112 students had no GPA and another 316 were found to have no ACT score.

Performing a cost analysis of the proposed changes, I have included a table that indicates the cost of each ACT requirement to the TELS program, as well as the eligibility rates. In short, increasing ACT scores saves money and reduces student eligibility. The figures indicate roughly a $10 million dollar savings for an ACT score of 23 and a $12.7 million dollar savings for an ACT score of 24. It looks as if the eligibility rate is an inverse of the savings rate, with a difference of less than two-tenths of a percent.

What does the cost look like by scholarship type for each ACT score? There is not a significant impact in regards to the costs of the 3 scholarship types, Hope, Gams, and Aspire. In fact, it looks quite similar for each ACT score.

Finally, we have an Impact Assessment of the bill on various student demographics. Impact was measured as the difference in distribution percentages between the ACT scores of 24 and 21 for each variable in the dataset. This ensures that the maximum amount of change is measured. It was found that the gender was the greatest impacted variable with a change of 1.45%

Looking at the gender distribution table provided, we can see the impact methodology in action. For females the 21 ACT distribution is being subtracted from the 24 ACT distribution. 58.03-56.58 = 1.45%.

This was performed for all variables and each category of the variable. Education system, scholarship type, pell-eligibility, race, enrollment status, family income, and parent education all had less than a 1% change.

Focusing on Gender, we can see that the gender gap increasingly favors females but increases only slightly for each ACT score. This can be somewhat hard to detect as we are visualizing only a 1.45% increase form 21-24.

In conclusion,

Increasing ACT scores saves at least $10 million dollars. Student eligibility remains above 92%. The proposed bill had the greatest impact on Gender, which widens the gender gap by 1.45%, for a total of a 58 to 42 female to male ratio. All other variables assess remained consistent. Looking forward it may be worthwhile to assess the impact of increasing the GPA requirement if the bill does not achieve desired impact.

The last slide includes links to the full distribution tables as well as the python source code, which could easily reproduce the cost analysis and impact assessment for additional ACT scores. I also provided two sources that offered insight for this assessment.

With that, I welcome any questions, comments, concerns. I can also pull up the source code and walk you through the analysis.