Is There A Difference?

Between GPAs of students who live outside the city limits opposed to inside?

Backround

This study aims to answer if students living in an urban or rural area of Durango affect the GPA of these students. Many students in Durango live outside the city limit of farms and in secluded neighborhoods that are usually around 20 to 30 minutes drive from town.

In Rural regions of California, 5.8% of High School classes are Advanced Placement while in urban areas 11.9% of classes are Advanced Placement. (publicschoolsfirstnc, 2019) In rural areas, it takes longer to go home, and on farms, work needs to be done so students have less time for homework. This is just to get a grip as this is not Durango.

Also, an average of 27% of students perform poorly in urban areas compared to rural areas which are 39% (*Students At Risk in Poor, Rural Areas,1997*) this can be due to lack to access to the internet or not being able to do homework due to a job.

Also, only 47% of students in rural areas have internet access (Poor Internet Connection Leaves Students Behind, 2020) This leaves students not being able to access the internet and do their homework.

NULL Hypothesis: 49% or Fewer students who live in rural areas perform worse in schools

Alternative Hypothesis: The percentage of students in a rural area is above 50%

Out of the total sample of 144 students, The data was sorted between GPA and then whether the students lived outside the city limits. Figure 1 shows the observed data between the student's GPAs

Observed	2.7 or below	2.7-2.9	3.0-3.4	3.5≤	Total
Inside City	4	9	39	21	73
Outside city	6	12	24	31	73
Total	8	21	63	52	144

Out of the sample, 5.5% of students Have a 2.7 or below, 14.5% have 2.7-2.9 43.75% have 3.0-3.4 GPA, and 36.1% of students have a 3.5 and above GPA. The results for the expected table are the same

Expected	2.7 or below	2.7-2.9	3.0-3.4	3.5≤	Total
Inside City	4.055555556	10.64583333	31.9375	26.36111111	73
Outside city	4.055555556	10.64583333	31.9375	26.36111111	73
Total	8	21	63	52	144

The Chi-Squared was calculated using the two sets of data in our experiment which were our Observed and Expected data sets and got these results.

Final Chi-Sq	6.800842993
D° of freedom	3
Critical value	7.815
P-Value	0.0785238975

Conclusion

Since we tested 4 GPA groups our degree of freedom is 3. In order to reject our null hypothesis, we would need a Chi-Squared of 7.815.

Our Chi-Squared is 6.8008 so our null Hypothesis is correct so there seems to be no difference between the GPA of students living inside and outside the city limits.

However, outside of the city limits is vague and a lot of the student body did not take the survey. In conclusion, I think this study is not large enough to show prominent results about the correlation between GPA and the location of where a student lives