

## Final Project Report

### Introduction

I sought to find out how much home prices increased in Cook County, Illinois. The whole of Chicago is in Cook County, among many other towns. Data used was from real estate sales in Cook County.<sup>1</sup>

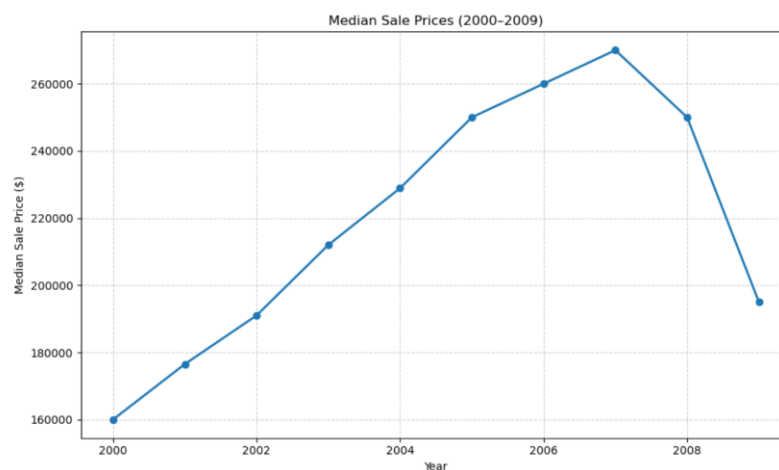
### Research Questions and Hypotheses

Hypotheses were worded accordingly for analysis to address the research questions.

I examined the following three Research Questions/Hypotheses: (1) Sales prices did not at least triple from 2000 to 2009?, (2) Median sale prices increased by at least 40% from 2000 to 2005. And (3) Median sale prices increased by at least 50% from 2005 to 2009.

### Analysis, Visualizations, Results

(1) In examining whether sales prices at least tripled from 2000 to 2009, the statistical test used was Welch's Two-sample t-test.



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<sup>1</sup> Assessor\_-\_Parcel\_Sales\_20251020. Available at [https://datacatalog.cookcountyil.gov/Property-Taxation/Assessor-Parcel-Sales/wvhk-k5uv/about\\_data](https://datacatalog.cookcountyil.gov/Property-Taxation/Assessor-Parcel-Sales/wvhk-k5uv/about_data).

The above chart shows median prices for real estate sales from 2000 to 2009. Real estate encompasses more than residential homes, but you work with the data you have. Real Estate values fluctuate for commercial and residential accordingly. At le3ast, that is the assumption. That would be a fine research question to examine on its own when and if such data becomes available to me, personally. It hasn't yet.

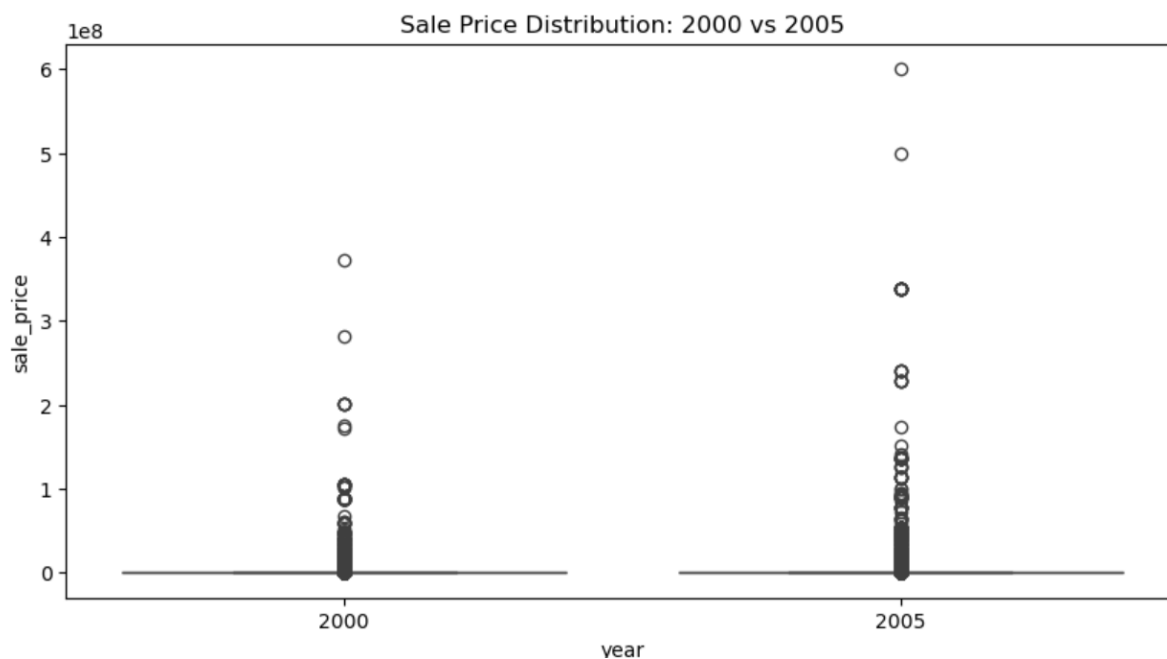
The chart relays some interesting findings. One finding is that prices seemed to practically skyrocket from 2000 until about 2007, after which they fell even more dramatically until 2009. 2009 being the last years for which good data was available.

At the end of 2009, real estate prices were not triple those of 2000. Even at its peak difference from 2000, real estate prices did not triple.

Importantly, the analysis looks at prices. This is a one-dimensional examination. I have no study to quote, though I recall reading various research, that is not my own, stating that real estate and housing rental prices have multiplied during the last decade, whilst people's income has only gone up a modest percentage. If actual mesarch is needed for more information on this matter, it may be investigated for precise numbers. The point is that while real estate, meaning home prices for my purposes here, may not have tripled during the decade noted, the real cost may actually be far beyond tripling. This is also good for a future hypothesis testing when data and more time are available for somebody that is not me.

"There are three kinds of lies: lies, damned lies, and statistics", this is Mark Twain. Right on the money, Mark. Further analysis may provide more insight, so it is possible. I am not on a mission to persuade anyone of anything critical. My point is that while my statistics are correct and even insightful, they are not the big picture. I felt that needed saying.

- (2) In examining whether sales prices increased by at least 40% from 2005 to 2009, the statistical test used was Mann-Whitney U Test.

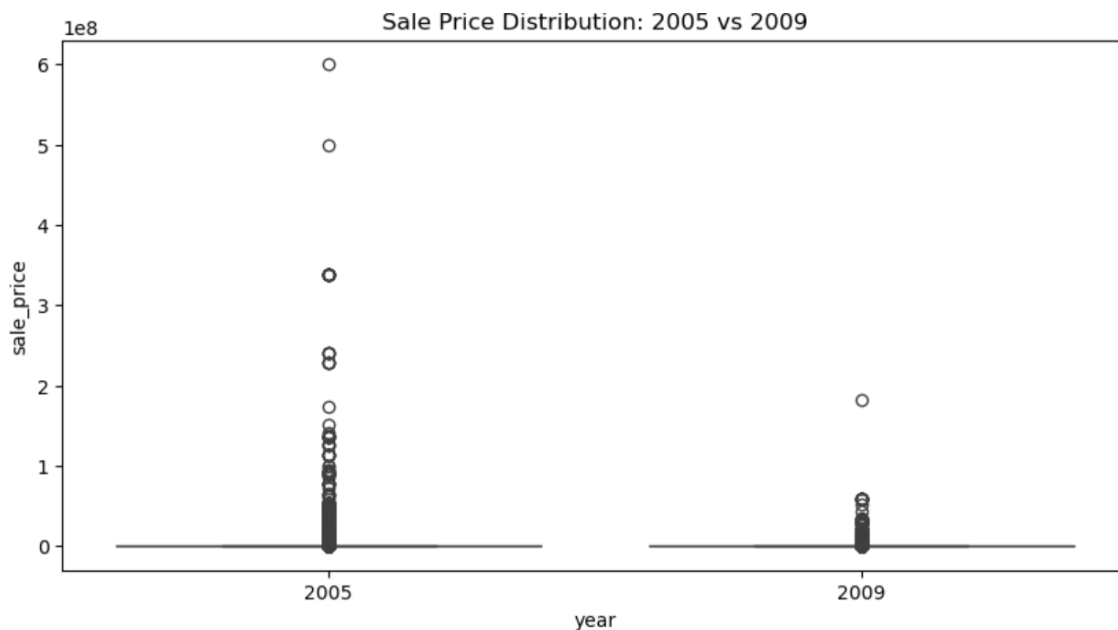


The above chart show that the high prices for real estate sales were approximately 25% higher in 2005 than in 2000. The chart also shows that the majority of sales prices in 2005 were higher than in 2000.

Hypothesis testing deals with sample sizes. Sample sizes need to be large enough, according to a formula, to be considered representative of the population. The population is everybody. If you have data for everybody of whatever you are examining, there is no need for analyzing samples, as you don't need a sample. Given the drastically incomplete data for available for years beyond 2009 to 2009, though here, we only look at years 2000 - 2005, it may be that the data for years 2009 - 2009 is not fully complete either.

At the end of 2005, real estate prices were at least 40% higher than in those of 2000.

(3) In examining whether sales prices increased by at least 50% from 2005 to 2009, the statistical test used was Mann-Whitney U Test.



The above chart show that the high prices for real estate sales were much higher in 2005 than in 2009. The chart also shows that the majority of sales prices in 2005 were higher than in 2009.

At the end of 2009, real estate prices were not at least 40% higher than in those of 2005.

### Conclusion

Real estate sales prices in Cook County, Illinois increased dramatically from 2000 until 2007, then they even more drastically decreased. I am not an economist, though a bubble was created. The bubble may have built more slowly than bubbles build in the technology industry, nevertheless, the dramatic rise made a bubble. That bubble burst after 2007.

## References

Assessor\_-\_Parcel\_Sales\_20251020. Available at  
[https://datacatalog.cookcountyil.gov/Property-Taxation/Assessor-Parcel-Sales/wvhk-k5uv/about\\_data](https://datacatalog.cookcountyil.gov/Property-Taxation/Assessor-Parcel-Sales/wvhk-k5uv/about_data).