1. Miles, M., Pringle, J., & Webb, B. (1989). Modeling the corporate real estate decision. The Journal of Real Estate Research, 4(3), 47.

Study accepted in 1989 with focus on modeling of interactions between real estate valuation, accrual accounting and corporate valuation. The study argues that the application of theoretical modeling to real life situation at the present time was quite challenging because of inadequate information regarding firm’s cost of capital, debt capacity, systematic risks, and operating expenses. Corporations were deciding on real-estate based on pure need for additional spaces instead of proper planning and modeling and this study tries to show alternative ways to assess risks and plan ahead when making real estate decisions.

In today’s world the challenges faced in 1989 are nonexistent since many corporations can increase their profitability through more effective management of their real estate and the shortage of data is no longer an issue. This entails evaluating real estate on an on-going basic using not only internal factors but also external factors that could have an impact on the value of real estate and its efficiency. In our study we plan to look deeper into the external factor (COVID 19) alongside others to get a deeper understanding of impact on real estate investments now and in the future.

1. Mimis, A. (2016). 3d weight matrices in modeling real estate prices. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-2/W2(2), 123-125. doi:10.5194/isprs-archives-XLII-2-W2-123-2016

This study argues that spatial econometric models currently presents on real estate data has a definition for weight matrix however current literature present treats space in a two-dimensional manner. This leaves out the effect of a third dimension or in their case the difference in height where the property resides. To overcome they propose a new definition of the weight matric including the third dimensional effect by using the Hadamard product.

Modeling is done by exploring relationship between house prices and their characteristics by using linear regression, OLS and SEM models with weight matrix in a 3d plain. The results of all 3 models, they observed that variables like area, parking, view, fireplace, air-condition have significant positive impact on the price of real estate.

1. Shim, J. (2018). Kernel-based geographically and temporally weighted autoregressive model for house price estimation. PLoS One, 13(10), e0205063. doi:10.1371/journal.pone.0205063

<http://web.b.ebscohost.com.proxy.libraries.smu.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=00811470-5484-478f-8bd4-abd153e2c311%40sessionmgr103>

This one was wayyyyyy too technical and super mathy so it was very difficult for me to understand/extract what they were doing. Sean mentioned he might take a look at this, it’s way over my head.

Does have some cool graphs though that we might be able to use but overall it’s a lot.

1. Tezel, G., & Yalpir, S. (2011). Modeling of real-estate prices using artificial neural network (ann) approach. International Journal of Arts & Sciences, 4(15), 335-340.

In this study an ANN model was structured to simulate the data obtained from the properties of a residential real-estate as the area, age, floor condition, physical properties and location of the real-estate as 5 input data and the price as 1 output data. The collected data was trained and tested with different hidden layer and neuron number assigning using ANN Toolbox of MATLAB software. The results were presented and the feasibility of ANN in residential real-estate price estimation was discussed. The best performance was achieved with 14-6 neurons in two hidden layer topology. The training and testing errors were obtained as 2.94% and 8,90%, respectively. The market prices were reached by 82% with ANN and R^sup 2^ value was 0,77.

1. Wang, D., Victor, J. L., & Yu, H. (2020). Mass appraisal modeling of real estate in urban  centers by geographically and temporally weighted regression: A case study of beijing’s core area. Land, 9(143), 143. doi:10.3390/land9050143

This one is not available, I did the request from another institution but nothing yet.

