

Commercial Property Price Indexes and the System of National Accounts

Comments of Robert J. Hill

Research Institute of Economy, Trade and Industry, Tokyo
December 14, 2017

Chihiro Shimizu

with

W. Erwin Diewert,

Summary

The main focus of this paper is the construction of separate land and structure price indexes for commercial property.

Price index construction for commercial property is harder than for residential property.

There are far less data points, the data points are more heterogeneous, and the data are harder to obtain.

The paper starts with a simple model, and then adds more and more features. The final model is complicated and nonlinear, and yet at the same time can still be estimated on a dataset consisting of about 2000 observations in Tokyo.

This is a very impressive paper.

It is very clearly written, which makes my job as a discussant easier.

It is very thorough, which makes my job harder.

The authors seem to have thought about and dealt with just about every conceivable detail that is relevant to the paper.

Nevertheless, I will try my best to raise some issues worth thinking about.

Does Value Equal the Sum of Land Plus Structure?

Suppose a building is constructed that is more expensive than makes sense given the plot of land.

Is it still true that value equals land plus structure?

In this case, value should be less than the value of the land plus the cost of building the structure.

Does the approach used in this paper assume that structures are matched optimally to plots?

If so, how reasonable is this assumption?

Depreciation

The actual depreciation rate is higher than the measured rate due to survivorship bias.

Is this a problem here?

Probably not. The relevant question here is: How much will a building have decreased in value after t years given that it is still there.

Changes in building regulations

Building regulations have presumably got tougher over time in Tokyo to make buildings more resistant to earthquakes.

It might be interesting to check when these tougher regulations were introduced.

This information might provide a check on the estimated depreciation rates.

Also, it might provide additional exogenous information that could be used to improve the model. For example, suppose regulations were tightened in year t . Then we could assume that there is a structural break in the depreciation rate for buildings built after that date.

Simple Mean or Median Indexes of Total Value

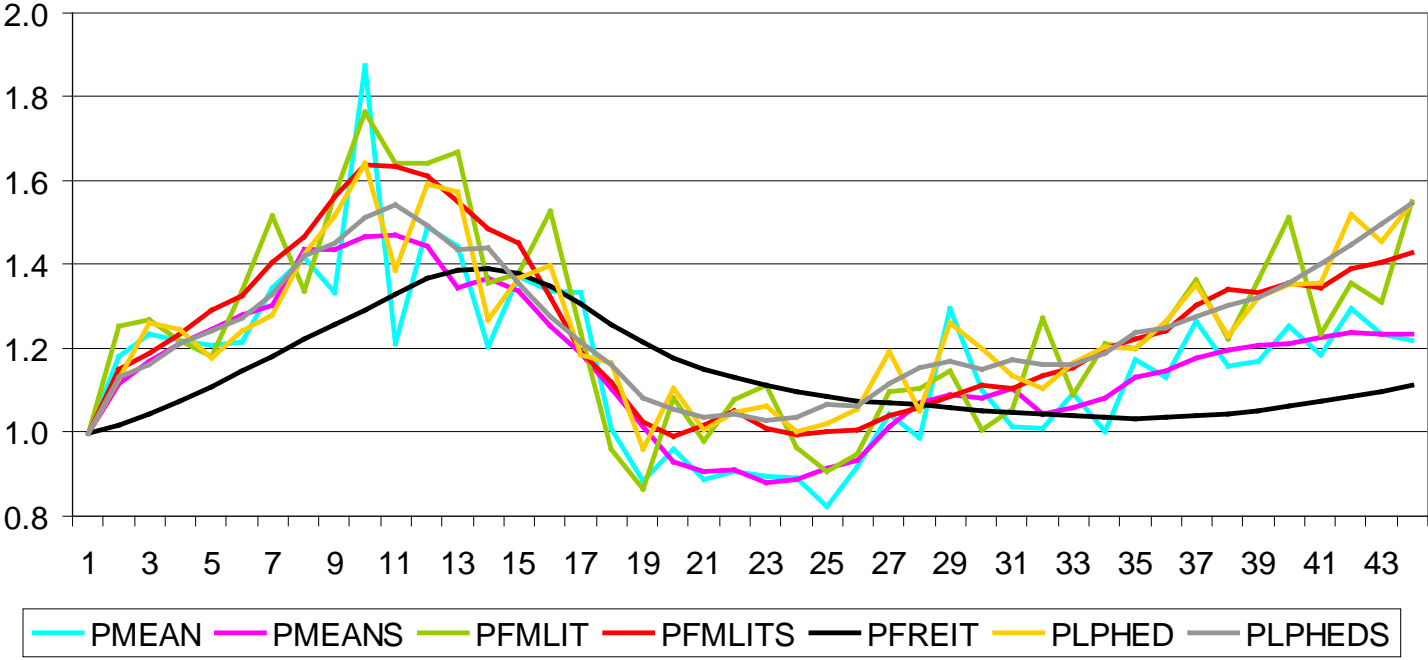
Problems with median and mean indexes.

Volatility: can be more or less fixed (with a lag) by the Henderson smooth.

Bias: The mean index is below the preferred hedonic index.

One possible explanation is that average quality has fallen. The mean index would fail to adjust for this. But a fall in average quality of new builds seems unlikely.

Chart 4: Comparison of Alternative Commercial Property Price Indexes



Depreciation (again):

In the conclusion it is argued that the mean index has a downward bias due to its failure to account for depreciation.

If there is a change in the average age of transacted buildings this could cause bias.

The observed apparent downward bias would be consistent with the average age of transacted buildings increasing over time.

Is average age rising? It might be interesting to include a graph showing how average age changes over time.

Commercial versus Residential

How do your commercial land price indexes compare with residential land price indexes that you have computed previously for Tokyo?

Was the boom and bust bigger for residential?

Do the turning points coincide?

Is there an existing literature discussing these issues? If so are your findings consistent with it?

Conclusion

This is a really good paper.

It demonstrates that robust land and structure price indexes for commercial real estate can be constructed from quite small data samples (given a reasonable list of characteristics).

The finding that indexes based on actual transactions data are preferred to indexes constructed using other data sources is important, and consistent with the findings from the residential price index literature.