Empirical studies of property appraiser behaviour
and of location value in office rents

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Overview

This licentiate thesis consists of two mainly empirical papers in real estate economics. Both studies investigate Swedish office markets. The first paper studies how rent varies over different locations and so deals with the value of a certain location to tenants and indirectly to property owners. The second paper studies property appraiser behaviour. Both papers use statistical methods from standard classical econometrics.

Paper 1: Can Space Syntax Help Us in Understanding the Intraurban Office Rent Pattern? Accessibility and Rents in Downtown Stockholm

The paper investigates whether the research field Space Syntax may help in explaining office rents. Space Syntax is a fairly recently developed research field that studies the built environment from a spatial perspective using quantitative tools. Research within this field has sought to reveal how form and function is related in the built environment. An example of what has been studied is how the shape of the street network influences pedestrian movement in an urban area.

The immediate aim of the article is to test whether the tools developed within Space syntax can be used to explain office rents in Stockholm. Space syntax can be regarded as a way of describing and measuring location. In a broader sense the study is therefore also meant to give an indication whether the field of Space Syntax is useful as a way of understanding location value in general. It is therefore interesting to see whether there exists a relation between Space Syntax and e.g. commercial or residential rents and property values. Office rents were chosen in this study partly because office rents are relatively easy to compare.

The paper develops a hedonic model for office rents. One of the included variables in the model is integration value, which is a measure of how well integrated, or accessible a certain location is relative to the surrounding urban area. This measure was developed within Space Syntax. The model is tested against data from the Stockholm office market. The sample consists of 184 office rental contracts from 62 properties located in the central parts of Stockholm. The time period covered is between January 1st 1999 and December 31st 2002. It is found that the integration value helps explain office rents. The more integrated is the
location of an office, the higher the rent. Space Syntax tools appear to be useful in explaining intraurban office rent patterns, at least in the central parts of Stockholm.

One may ask if the empirical results can be generalized to other office markets. In a strict sense this is not possible since the data is collected solely from Stockholm and we cannot exclude the possibility that Stockholm is special in some sense. However, results from other studies within the Space Syntax field indicate that integration values are related to many types of human activity across many cities and may therefore arguably be thought of as a fairly general concept, which is not specific to a certain urban area (for references, see the section Space Syntax in the paper). This suggests that the results in the study may be general to other urban areas though further research is needed to confirm this.

The paper is forthcoming in *Journal of Real Estate Finance and Economics*.

**Paper 2: A study of micro-level variation in appraisal based capitalization rates**

Property valuations are used in a number of situations and play an important role in real estate markets. Due to the lack of transaction data, they are particularly important in office property markets. Market participants and analysts must often rely on appraisals instead of observable prices. The quality of appraisals and the appraisal process is therefore an important field of research. The empirical research in the area is however scarce largely because detailed appraisal data normally is proprietary. This paper makes use of such data and aims mainly to give an explorative investigation of how appraisers appraise office properties using the discounted cash-flow method. The inputs of appraisers discounted cash-flow valuations are studied. More specifically, the study investigates how assumed going-in and going out (exit) capitalization (cap) rates relate to each other and how they relate to other appraiser assumptions and property characteristics. To a certain extent, the study tests the consistency and quality of appraisals. The regression models used in the paper are based on standard financial models (Gordon model) and earlier research in the area.

Appraisers appear to set exit cap rates in a detailed manner and going-in and exit cap rates relate to each other in the expected way. One may also argue that the variation of cap rates relating to property characteristics and other appraiser assumptions are as expected but these conclusions are less strong since theory gives less clear indications as to what should be
expected. Overall, the studied appraisals do not exhibit any clear cases of inconsistency in the aspects investigated.

To the extent that appraisers assumptions are reflections of what happens in the market, the study also gives information on how property characteristics influence cross-sectional variation of property cap rates. Caution is however needed when making interpretations of this type. The study is based on appraiser data and appraiser assumptions, not transaction data. In order to draw conclusions of this type, we must at the least assume that appraiser assumptions are unbiased estimates of market characteristics. This may not be the case.

The study investigates 3026 Swedish cash-flow valuations of prime office properties in Stockholm, Gothenburg and Malmö during 1998-2004. The data is gathered from SFI/IPD (Svenskt Fastighetsindex/Investment Property Data Bank). Due to institutional differences between countries and over time, different roles of property appraisers etc, generalizing the results of this study to other circumstances (e.g. other countries or other time periods) calls for caution.