

Housing Vacancies and Rents in a Rent Controlled Market- the case of Sweden



**KTH Architecture and
the Built Environment**

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Abstract

Vacancies on the Swedish rental housing market and its accompanying market characteristics: rent level and market structure, are the main topics of the essays in this thesis.

The comprehensive aim of the research in this thesis is to find answers to the question: Why are there so large differences in observed vacancy rates among municipalities and among submarkets within municipalities in Sweden?

Vacancy rates on the rental housing market in Sweden have sometimes been high, for some municipalities they have been very high causing problems especially for the municipal housing companies. Hedging in the phenomenon vacancies, this thesis comprises a literature review on theoretical and empirical papers on natural vacancies, definitions on vacancy concepts in relation to different types of market structures, a terminology for vacancy concepts and taxonomy of measures to reduce vacancies. Exploring the phenomenon empirically, the thesis analyzes municipal landlords' behavior when confronted with high vacancies: explaining their behavior through classification and statistical analyses. Other issues treated are determinants of vacancies and studying how differences in the rental structure effect vacancies in growing and declining municipalities. Finally studies of whether the rental structure within municipalities can be altered through annual negotiations indicate a possible way to reduce high vacancies and welfare losses in less attractive submarkets in Sweden.

Keywords: Rental housing market in Sweden, vacancies, natural vacancies, monopoly, adjustment measures, rent control, negotiated rents, welfare loss, housing and neighborhood quality, relative rents, rent gradient.

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- III. Bohman, Mats and Klingborg, Kerstin (2008). "Natural Vacancies under Monopoly on Local Submarkets for Rental Housing".
- IV. Björklund, Kicki and Klingborg, Kerstin (2003). "Kvalitetsbaserad hyra via hyresförhandling- en möjlig väg?". (*The Feasability of Quality-Based Rent Setting*)
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- VI. Andersson, Roland, Klingborg, Kerstin and Wilhelmsson, Mats (2009). "Rent Control and Vacancies in Sweden".

Housing Vacancies and Rents in a Rent Controlled Market- The Case of Sweden

Summary and concluding discussion

1. Introduction

Vacancies on the rental housing market in Sweden are the central theme in this thesis. Current vacancy rates in Sweden averaged 3.7 percent when the first project of this research journey started. A closer look revealed the fact that some municipalities had zero vacancies and others over 20 per cent. Municipal housing companies had higher vacancy rates than private landlords. How come? What kind of phenomenon are vacancies? How is it defined? Why does this non-uniform distribution across municipalities exist? Is it even higher on sub-markets within a municipality? What has been done to reduce vacancies by the municipal housing companies? One question led to another and a postal survey was sent to municipal housing companies to find out some answers. The international literature on natural vacancies was certainly a fruitful source of many answers. At that time not much had been written on vacancies in Sweden, except for studies of vacancy chain models, (Magnusson, 1994).

Some of the above questions were answered and new arose: how can the adjustment measures applied by the municipal housing companies be systematized so that they can be identified theoretically and allow us to say something about expected effects on the vacancy rate? Why do the companies not simply rent the vacant apartments out as long as the rent covers the average variable cost and get some contribution to the average total cost as we would expect them to according to theory? Instead of decreasing the uniform rent level they price-discriminated among groups of tenants and demolished buildings. What does that indicate concerning type of market structure? Is there a correlation between market share and particular adjustment measures?

Working with the literature review a lack of unanimity among authors regarding the concept of natural vacancies became evident. Some authors ascribed natural vacancies to vacancies in short run equilibrium (Blank and Winnick 1953, Arnott, 1989, Rothenberg et al.1991) some to long run equilibrium (Rosen and Smith 1983, Igarashi 1991). Natural vacancies were shown both in market models of perfect competition (Rothenberg et al.1991) and monopolistic competition (Blank and Winnick 1953, Arnott, 1989, Igarashi 1991). Read (1988) presents a reason to why the natural vacancy rate exists in both types of market structure: the existence of search processes. These differences revealed the possibility of a more complete terminology. Five vacancy terms were defined of which all are relevant for the market structure perfect competition and four are relevant for monopolistic competition. Some results in the first essay, such as the use of price discrimination and quantity adjustments without preceding price adjustments, indicated the existence of a monopoly market structure in Sweden. As there was no paper found on the monopoly solution and natural vacancies, a paper on that subject was written.

When analyzing vacancies, rents automatically will come in focus too. The rent system in Sweden includes local negotiations between the Swedish Union of Tenants and the Municipal Housing companies. These negotiations take place every year with the goal of determining the

change in rents for the coming year. Through a differentiation in rent increases between neighbourhoods it is possible to move away from historic production cost and prime cost based rents and towards rents in better accordance with tenants' opinions of housing and neighbourhood quality. This is the task addressed in two papers in this thesis by studying the correlation between rents and housing and neighbourhood quality in two cities in Sweden.

Rents in rental housing in Sweden are regulated which makes one wonder: what is the impact of rent control on vacancies? The effects of rent control in attractive areas are rather well documented. But what are the effects of rent controlled rents on vacancies in less attractive areas or municipalities with decreasing population? What about welfare losses? In order to investigate this issue and also to find determinants of housing vacancies in Sweden, some studies were carried out in a recent paper.

The next section starts with an overview of the essays in the thesis (table 1) and proceeds with a more detailed presentation of each paper including aim, method, results and contributions.

Research results are discussed in section 3 and finally topics for future research are introduced in section 4. References are found in section 5.

2. Essay summaries

The table below provides an overview of the contents of the papers in this thesis. This is followed by summaries of each essay.

Paper Title	Background	Literature Review	Theory development	Data sources	Econometric method or type of Analysis	Empirical findings or implications of theoretical analysis
Essay I: Vacancies and adjustment measures on the Swedish Rental Housing Market	Facts and figures on vacancy rates		Classification/ Taxonomy of measures to reduce vacancies Short run quantity adjustments	Postal survey	Cross tabulation with Chi-square or Fishers' test One way analysis of variance	Changes in pricing strategy Quantity adjustments without preceding price adjustments
Essay II: On Natural Vacancies		Theoretical and empirical papers defining the concept of natural vacancies or determining natural vacancy rates	Definition/ Typology of vacancy concepts		Qualitative comparative static demonstrating states of equilibrium and disequilibrium in a market with perfect competition and monopolistic competition respectively	Literature overview on natural vacancies Extended typology of vacancy concepts including also market structure monopolistic competition
Essay III: Natural Vacancies under Monopoly on Local Submarkets for Rental Housing	Municipal Housing Companies: stock, new construction and vacancy rates	Papers on natural vacancy rates.	A monopoly profit-maximizing solution will include natural vacancies and will produce more vacancies than perfect competition given the same shape of the SRAC function		Theoretical analyses of the monopoly profit-maximizing solution for the investment decision and pricing strategies	The monopoly model explains behaviour of municipal landlords during the nineties

Table 1. Overview of the contents of the papers in the thesis (continued on next page)

Paper Title	Background	Literature Review	Theory development	Data sources	Econometric method or type of Analysis	Empirical findings or implications of theoretical analysis
Essay IV: Quality based rents- a possible way?	Review of the Swedish rent setting system and current debate	Rents in relation to housing and neighbourhood quality or willingness to pay; tenant preferences and Swedish reports on the rent setting system		Municipal housing companies, Public data, Calculated variables	OLS, hedonic regression, cross sectional data Simulation and evaluation of rent levels	Rent levels in Göteborg are more in accordance with tenants' perception of neighbourhood quality than in Luleå. Immediate implementation of research process and results through close cooperation with practitioners
Essay V: Correlation between Negotiated Rents and Neighbourhood Quality-a Case Study of two Cities in Sweden	Substantial description of the Swedish rent setting system and its development	Evaluations of the Swedish rent setting system; willingness-to-pay and residents valuations of housing and neighbourhood quality; hedonic regression		Municipal housing companies, Public data, Calculated variables	OLS, hedonic regression, cross sectional data	The existing rent-setting system in Sweden can be used to improve the relationship between rental structure and neighbourhood quality
Essay VI: Rent Control and Vacancies in Sweden	Review of the Swedish rent setting system and current debate	Rent control and effects on the housing market; vacancies	Under rent control vacancies bear the role of signalling excess demand or supply on the rental housing market	Union of Tenants and Swedish Association of Municipal Housing Companies, Public data	Fixed effect, OLS and Prais-Winsten (AR1) multiple regressions on panel data Simulation and evaluation of vacancy rates	Determinants of vacancies. Welfare losses in both in growing municipalities with rents below market rents and in declining municipalities with rents above market rents

Table 1. (Continued from previous page) Overview of the contents of the papers in the thesis

Essay I. Klingborg, Kerstin (2000). Vakanser och anpassningsåtgärder på den svenska bostadshyresmarknaden I licentiatuppsatsen: Vakanser på bostadshyresmarknaden- i praktik och teori (In Swedish). (*Vacancies and adjustment measures on the Swedish Rental Housing Market*) in the monograph (*Vacancies on the Rental Housing Market- in Practice and Theory*).

This first essay in this thesis constitutes the first part of a monograph and aims at describing and analysing the problem of vacant apartments on the Swedish rental housing market and studying how the problem is handled by municipal housing companies. In particular the report analyses the adjustment measures that are carried out and how these adjustment measures can be explained theoretically.

Chapter 1 is an introduction to the complete monograph consisting of essays I and II. Essay I consists of five chapters, chapters 2-6. Chapter 2 introduces the problem of high vacancy rates in Sweden through facts and figures. The postal survey is described in chapter 3 and the descriptive statistics are presented in chapter 4. In chapter 5 the adjustment measures taken are classified. The structure of the classification is based on expected adjustment behaviour of the landlords assuming the market structure is monopolistic competition. The classified measures are then analyzed and measures explained as well as measures not explained by the model are discussed. In the final chapter statistical analyses of the results of two questions in the survey is conducted. A new variable, market position of the housing companies is calculated and the connection with certain adjustment measures is analysed.

All appendices of the monograph are related to essay I: The full postal survey comprises appendix 1, appendix 2-4 contain detailed answers on some of the questions in the survey; appendix A concerns the possibilities of generalizing the results of the study from a theory of science perspective. Appendix B is a statistical analysis of the relation between changes in vacancy rate and number of adjustment measures taken by the landlords. Appendix C reports on the calculation of new variables for landlords' market position.

The data from the postal survey revealed several unexpected adjustment behaviours of the municipal landlords. Short run quantity adjustments were found while theory only speaks of long run quantity adjustments. Demolition – a long run quantity adjustment was surprisingly common. A correlation between high market share and demolition was demonstrated. It became evident that the housing companies had changed pricing strategy during the studied time period from a uniform price to a special form of price discrimination namely price discrimination among groups of tenant, that is third degree price discrimination. General reductions in the uniform rents had taken place only in a few cases. In those cases a correlation was found with increased competition either through increased supply of substitutes within the municipality or increased supply in nearby municipalities. Increased supply of rental housing within the municipality had however no correlation with rent reductions. The model of monopolistic competition was successful in explaining the behaviour of the municipal landlords. The presence of price discrimination indicates that the Swedish rental housing market might have submarkets with a monopoly structure.

The models of classification of measures in chapter 5 suggests a taxonomy that can serve as a prototype in assessing what measures would be appropriate to use to reduce vacancies, as well as evaluating effects of measures taken. The three models used are based on theory. The first and third model uses the model of profit-maximizing behaviour on a market characterized by monopolistic competition. The first model classifies four types of adjustment behaviour: 1)

price adjustments, 2) quantity adjustments, 3) product differentiation and 4) marketing. The third model classifies whether the adjustment measure aims at establishing a) short run equilibrium, b) long run equilibrium or c) change equilibrium position. The second model uses the idea of steady state equilibrium¹. The adjustment measures are classified in terms of their effect on tendency of households to enter or leave the market: i) increased tendency of households to enter the market, ii) reduced tendency of households to leave the market and iii) a combination of i) and ii). A result presented in chapter four was that a negligible proportion of the Municipal Housing Companies carried out investigations before decisions on what measures to take to reduce vacancies. Neither did they carry out any evaluations of the effected measures. The tables in chapter four show that the municipal housing companies' perception was that vacancy rates were higher in submarkets with certain characteristics like peripheral location, high rents, large scale buildings and neighbourhoods and neighbourhoods with tenants with social problems. A combination of low immigration but normal emigration was the companies' conception of what caused vacancies on the demand side.

The contributions of this part of the monograph are:

- Increased knowledge of the geographic location of vacancies within a municipality and of other characteristics like high rent and large scale buildings
- Information on the lack of written decisions about expected effects of adjustments measures among landlords and lack of evaluation of the results
- Classifying the adjustments measures taken created a structure through which the actions of the landlords can be interpreted and explained
- Unexpected behaviour of landlords was revealed, like short run quantity adjustments and price discrimination among groups of tenants
- A correlation between the adjustment measure reduced rents and increased competition from markets where the landlords can not affect the prices
- A correlation between high market share of municipal landlords and the adjustment measure demolition of buildings.

¹ Steady state equilibrium is a market situation when the relevant variables change proportionally.

Essay II: Klingborg, Kerstin (2000) Om naturliga vakanser. I licentiatuppsatsen: Vakanser på bostadshyresmarknaden- i praktik och teori (In Swedish) [*Analysis of Natural Vacancies*], in the monograph [*Vacancies on the Rental Housing Market- in Practice and Theory*].

This essay, the second part of the monograph, consists of three chapters. Chapter seven introduces this theoretical part. Chapter eight comprises a literature review of important papers on natural vacancies containing either a definition of natural vacancies or demonstrating some additional aspect of the natural vacancy rate than already shown in previous papers. The papers are presented in chronological order, from 1953 to 1995, to demonstrate the development of the definitions over time, with theoretical and empirical papers presented under separate headings. Chapter eight concludes that even though the concept of natural vacancy rate is quite ambiguous in the literature a number of recurrent characteristics can be identified. Chapter nine takes on the task to elucidate the terminology of the phenomenon natural vacancies on the rental housing market. Qualitative comparative statics are used to distinguish five concepts of vacancies and their connection to short and long run equilibriums when market structures are perfect or monopolistic competition. Chapter ten ends the monograph summing up findings and conclusions as well as presenting the contributions of the research.

A conclusion of the literature review is that there are inconsistencies among the authors regarding whether the natural vacancy rate is related to short or long run equilibrium or both. Some do not explicitly define which equilibrium their analysis bear upon. However, a review of the literature shows that: the natural vacancy rate is the vacancy rate that is when the market is in equilibrium- short or long run. The natural vacancy rate is at that moment the difference between the total amount of apartments on the market and the number of leased apartments divided by the total amount of apartments on the market. In temporal analyses the natural vacancy rate has the characteristic of steady state or stationary equilibrium. Changes in the natural vacancy rate then depend on changes in persistence and/or probability of vacancies. The natural vacancy rate is proven to exist in the rental housing market both in models of perfect competition and monopolistic competition. The natural vacancy rate is not constant but varies over time. The natural vacancy rate depend on a number of factors: the shape of the demand function; the shapes of the short and long run cost functions; search costs; the efficiency of the search technology; the time period of the search process, the time period of the lease; the relation between the number of arriving and departing households in the rental housing market.

Empirical papers have shown a covariance between the natural vacancy rate and: the rent level on the market, the dispersion of rents, the level of relocation, yearly population growth, annual mean change of the housing stock and percentage minorities of the population. The natural vacancy rate was found to differ between cities, between submarkets in the same city and between types of apartments.

The result of chapter nine is firstly a structured and complete vacancy typology including both perfect competition and monopolistic competition. Such a typology was found to be non-existent. Two of the denominations in this typology: "natural vacancies in short run equilibrium" and "deviation from natural vacancies in short run equilibrium" has previously not been defined.

The contributions of this part of the monograph are the literature review as such giving an overview of important papers in defining and determining natural vacancies. There is, to my knowledge, no previous in depth literature review on this subject. The synthesis of the papers showed certain discrepancies in results that probably can be ascribed to data and methods used. The vacancy terminology is a contribution. The terms have not been unambiguously described before and two new terms are introduced that completes the terminology.

Essay III: Bohman, M. and Klingborg K. (2009) Natural Vacancies under Monopoly on Local Submarkets for Rental Housing, Working Paper No. 59, Section for Building and Real Estate Economics, KTH Royal Institute of Technology.

In part I of the monograph, essay I above, one of the conclusions from the classification of measures was that the Swedish rental housing market might have submarkets with a monopoly structure. As we found no theoretical paper treating the case of monopoly and natural vacancies we decided to take on that mission. In addition, a theoretical paper of Blank and Winnick (1953) discussing the impact of the shapes of demand and cost functions on the number of natural vacancies, made us curious. So there are two aims with this paper. We explore whether natural vacancies occur also in the equilibrium solution under monopoly. Furthermore we test the relevance of the monopoly model in explaining some behaviour of Swedish municipal landlords, Klingborg (2000).

The submarkets we have in mind here are characterized by homogeneous large scale multifamily buildings, by peripheral location in the municipality and often there is one landlord: the municipal housing company.

We examine the profit-maximizing solution of the long run investment problem facing the monopoly landlord. And then, with the optimum housing stock achieved we proceed by considering two different rent setting strategies open to the landlord in the long run and short run perspectives: a single price and price discrimination among groups of tenants. The model is a standard monopoly model and we use qualitative comparative statics to demonstrate the profit-maximizing solutions for both problems. The vacancy terminology developed in Klingborg (2000) is utilized in the analyses.

We found that indeed, the monopoly solution will contain natural vacancies both in long run and short run equilibrium. We could also confirm the statement of Blank and Winnick (1953) that the shape of the long run cost function, given the marginal revenue function is essential in determining the number of natural vacancies. We argued that, under the condition of approximately the same shape of the short run average cost function, monopoly will have higher natural vacancies in equilibrium than perfect competition. In treating the pricing decision of monopoly, we reason on how the monopoly very well can change pricing strategy in for example a situation with a downward shift in the inverse demand curve. Price-discrimination will then be a profit-maximizing behaviour. We conclude that the monopoly model does help in understanding the adjustment behaviours of Swedish municipal landlords during the nineties.

Contributions of this paper are firstly the definition of natural vacancies in the monopoly solution, which was not previously done. Secondly, the conclusion that the monopoly model helps explaining Swedish municipal landlords' adjustment behaviour during the nineties, sheds light on the fact that even if landlords are owned by a municipality and therefore might be expected to act welfare-maximizing, they can start acting as the monopoly landlord they are and profit-maximize if they can, when conditions change.

The research idea of this paper stem from empirical findings in Essay I above, indicating the presence of monopoly structure in the Swedish rental housing market. The abstract and introduction, background on *Municipal Housing Companies* and the literature review on *Natural Vacancies* is my work. Mats Bohman did the mathematical analyses in sections *The*

Investment Decision and *The Pricing Decision*. Sections *Natural Vacancies in the Equilibrium Solution* and *Summary* were composed together. I was the editor of the paper.

Essay IV: Björklund, Kicki and Klingborg Kerstin (2003) Kvalitetsbaserad hyra via hyresförhandling en möjlig väg? (In Swedish) (*The Feasibility of Quality-Based Rent Setting*) Essay no 28, Royal Institute of Technology, Stockholm.

This paper aims at analysing the existence of differentiated rents reflecting differences in housing and neighbourhood quality. The system for rent setting in Sweden is partly based on a negotiation process in which the change in rents is an outcome of annual municipality-wide negotiations between the tenant's association and the municipality-owned housing companies. In this negotiation there is a possibility to let rents develop differently in different neighbourhoods aiming towards better correspondence between rents and tenants conceptions of housing and neighbourhood quality. Since the middle of the nineties, the negotiations in some municipalities have consciously aimed towards such rental adjustments. By using the hedonic framework on unique data from two cities in Sweden: Göteborg and Luleå, the paper explores the results of this process.

The paper is written within the framework of a large housing research project at KTH and therefore points out in special how the results of a hedonic study on housing quality can be utilised to evaluate present rent differences thereby creating a solid basis for changes of the rent structure.

Learning about housing and neighbourhood quality, there were a number of papers providing useful results that could be utilized in this study: Fransson et al (2001), Basolo and Strong (2002) and Parkes et al. (2002). Highly ranked preferences among residents are safety and security, grocery store nearby, good conditions of buildings and nice, green environment. A study of five submarkets in Quebec by Des Rosiers and Theriault (1996) supported the choice of method, hedonic regression analysis.

Essays IV and V use the same data and econometric analyses. The five regression models will be described in the summary of essay V (page 13 below). The data is unique and of highest quality. We were given access to actual rents on apartment level in both cities, also including building characteristics like type of kitchen, number of floor and building age. In Luleå we also had the opportunity to use recent surveys of tenants' perceptions of neighbourhood quality such as whether or not they regard the neighbourhood as safe, as having good reputation and as having a nice outside environment. Also number of interest applications to a vacant apartment in the neighbourhood was available in Luleå. We calculated the variables for exploitation density and distances to the nearest shop and mall. An idea was to use number of reported crimes as a neighbourhood quality variable. But when we received the data from the Police authority, we found that their geographic report system was impossible to transform into equivalent neighbourhoods so unfortunately we had to drop that data. For Göteborg corresponding data on neighbourhood quality was not available. Instead we used public statistics and chose the variable 'share of population with a university degree'. We also utilized results from another study (Fransson et al., 2001) regarding willingness to pay.

This article represents a method of working in cooperation with professionals in the housing sector. During the whole research process we had close contact with the professionals in our reference group, especially the persons representing municipal housing companies in Göteborg and Luleå. We have walked through every dummy variable (neighbourhood) in the study. This way of working added value to the research in the sense of facilitating comprehension of the problem and its environment, access to unique data, immediate implementation and feedback of problem formulation, research method and results. The paper

focuses on discussing the correlation of rents and a more complete set of housing and neighbourhood quality, which is reflected in the discussion in section 3 of the essay. The figures attempt to illustrate the research issues in a pedagogic, though theoretically correct, way. The result of a thorough discussion in the reference group on the concept of housing and neighbourhood quality: what it is and how it can be measured, is presented in appendix A5. In chapter 6.1 the utility of results of the hedonic regression is illustrated and explained. In table 8 the discrepancies between actual rents and residents perception of neighbourhood quality are evident: in Luleå the 'best' neighbourhood has almost the lowest rents, only slightly higher than the neighbourhood considered as the 'worst'. There is also a considerably large difference in the rent level between the 'best' and the 'most expensive' neighbourhood. In Göteborg, the figures have clearly a better consensus: rent levels of the 'cheapest' and the 'worst' neighbourhoods are almost the same. The rent level in the 'best' neighbourhood is considerably higher than in the 'worst' neighbourhood but still, not as high as in the 'most expensive' neighbourhood. To use the results of the hedonic coefficients to evaluate rent levels in relation to findings on tenants' appreciation of neighbourhood qualities is our view a more accurate method than using mean actual rents like in a previous study (Blom, 2000). In chapter 6.2 and 6.3 these findings are discussed.

Our policy concerns are that although the present debate is about rent setting related to housing and neighbourhood quality, the actions of housing companies is still to claim rent increases based on costs. Our recommendations are that the work done by serious landlords to increase and measure housing and neighbourhood quality should be acknowledged in the negotiation process. The negotiating parties in all municipalities must choose to understand the fact that a vast majority (84%) of Swedish housing neighbourhoods have higher rent than willingness to pay, as shown in a Government Official Report (SOU 2000:33).

We have shown in this paper the relative rents in both cities and how well they are adjusted to tenants' conception of housing and neighbourhood quality. In Luleå the rent gradient was upside down: the 'best' neighbourhood had the lowest rent and the rent difference between the 'best' and the 'worst' neighbourhoods was -37 SEK per square meter per annum. The rent difference between the 'most expensive' and the 'cheapest' neighbourhood was 200 SEK per square meter per annum. In Göteborg the rent gradient had the right direction: the 'worst' neighbourhood had almost the cheapest rent and the 'best' neighbourhood had almost as high rent as the 'most expensive'. The rent difference between the 'cheapest' and the 'most expensive' neighbourhoods was 324 SEK per square meter per annum.

It is our conception that this paper contributed in an early phase to the debate on quality-based rent setting among municipal housing companies in Sweden. At present several municipal landlords are in the process of developing or applying similar systems as utilized in Göteborg.

In this paper, I contributed with the literature review and running the econometric estimations and calculations of neighbourhood quality variables in the data of Luleå. The rest of the paper was written together. I was the editor of the paper.

Essay V: Björklund, Kicki and Klingborg Kerstin (2005) Correlation between Negotiated Rents and Neighbourhood Quality-a Case Study of two Cities in Sweden. Housing Studies, 20:4, 627-647. (www.informaworld.com)

This paper is intended for international publication and here most of the internal national discussion of the previous paper is dismissed. The data and the five regression models are the same and the focus is narrowed to exactly that -the hedonic regression method, the results and contributions thereof. A number of important references are added which contribute to a more complete introduction of the Swedish rent setting system for foreign readers (Sirmans et al. 1989; Svensson 1998; Turner 1988, 1992, 1997, 2000 and Turner and Whitehead 2002). We aim at demonstrating that the current rent setting system in Sweden allows for a better relationship of rent level and tenants perceptions of neighbourhood quality.

The first regression model captures differences in rents explained solely by variables for apartment and building characteristics like number of rooms, type of kitchen and floor number. In model number II we add the age of the building. This is a critical variable since there is a prevalent general opinion that age is the main determinant of rent levels in Sweden. We aim at showing that this is not necessarily true any longer. Regression number III includes neighbourhood dummies. In regressions IV and V, we replace the neighbourhood dummies with different proxies for neighbourhood quality. The hypothesis is that models III including neighbourhood dummies and models IV and/or V including proxies for neighbourhood quality should have approximately the same explanatory power. If so, indications are that the rents capture tenants' conception of neighbourhood quality.

Results of regressions I and II indicates that residential unit, property and age variables explain more of the variation in rents in Luleå than in Göteborg. Unit and property variables (regression I) explain 48 per cent of the variation in rents in Luleå compared to 22 per cent in Göteborg. When adding the age variable (regression II) the R^2 value increases to 67 per cent for Luleå and to 32 per cent for Göteborg, indicating that the age variable is an important determinant for rents in Luleå but not in Göteborg. The next step, adding the neighbourhood dummies, resulted in an increase explanatory power (regression III) to 80 per cent for Luleå and 76 per cent for Göteborg. This means that we were able to find statistically significant differences in rent levels amongst the neighbourhoods of both Luleå and Göteborg, when controlling for the parameters housing quality and building age.

However, the results of regressions IVa to V for Luleå indicate that those quality variables which in various studies are found to be highly ranked by tenants, have little, zero or the opposite impact on actual rents than expected. Variables reflecting opinions on the reputation of and security in the neighbourhood (regressions IV and IVb) are significant and have expected signs, but have negligible contributions. Regression V includes five quality variables: distance to shop and mall, number of interest applications, exploitation density and mean income. All variables are statistically significant and have expected signs- except both the location variables indicating increased rents with longer distance to the shop and mall. The explanatory power of model V is 69 per cent as compared to 67 per cent for the model without these quality variables and 80 per cent for the model including neighbourhood dummies.

Switching variables from neighbourhood dummies to proxies for neighbourhood quality in regression IV and V for Göteborg, add a lot of explanatory power to the models: 68 per cent and 70 per cent respectively. It is almost as high explanatory power as when using

neighbourhood dummies. This indicates that negotiated rent structures in Göteborg are well adjusted to reflect differences in neighbourhood quality.

Contributions of the paper is that we have shown that quality based rents are achievable within the current rent setting system in Sweden. The tools for adjusting this rent gradient in any municipality are the yearly rent negotiations combined with profound knowledge among the negotiating parties of tenants opinions and perceptions of housing and neighbourhood quality.

In this paper my contributions were an extended literature review, running the econometric estimations and calculations of neighbourhood quality variables in the data of Luleå. The rest of the paper was written together. I was the editor of the paper.

Essay VI: Andersson, R., Klingborg K. and Wilhelmsson M. (2009) Rent Control and Vacancies in Sweden. Published in: *International Journal of Housing Market and Analysis*, Vol.4, No. 2, 2011, pp105-129.

The features of rent control analyzed in the literature are often housing shortages, lack of maintenance, low incentives for new construction and too low mobility rates with welfare losses as consequences. Rent control is said only to bite in attractive areas with high demand (Glaeser 2003). But how is the situation in less attractive areas, areas with decreasing population when the rent control incorporates the whole country as in Sweden? We can observe high vacancy rates in several municipalities. In the paper the effects of the rent regulated rent levels on actual vacancy rates are analyzed.

Our hypothesis is that there would be different effects of the rent control on vacancy rates depending on whether the region is growing or contracting.

In the study, observed vacancy rates of municipal housing companies in 274 municipalities the years 1994-2006 are analyzed. The data on rents is provided by the negotiating parts on the rental housing market: The Swedish Union of Tenants (Hyresgästföreningen) and the Swedish Association of Municipal Housing Companies (SABO). The rest of the data are retrieved from public sources.

The method is panel data regression and the model is similar to the one used by Rosen and Smith (1983). Explanatory variables utilized are population growth, population size, rent level, income, residential construction and demolition. We introduce a concept of market orientation to capture whether the rent level in the municipality is correlated with income per capita. The error term in the regression explaining actual rents by income per capita tell us how well adjusted actual rents are to income. High values of the error term indicate a low market orientation and vice versa. The quota of the error term and observed rent, variable name *MO_rate*, is used as independent variable in the above main regression model to explain vacancy rates.

The special feature of this paper is to analyse differences between growing or attractive areas and contracting or less attractive areas. We expect to find rents below market rents in growing/attractive areas and rents above market rents in contracting/less attractive areas. Therefore we also design two binary variables RAMR and RBMR which capture whether the error term (market orientation) is positive (RAMR) or negative (RBMR).

We estimate five different specifications of the main regression model as follows: Regression C1 uses the demographic variables *popgrowth*, that is the population growth in the municipality in percent the specific year, and *population* which is the number of individuals in the municipality. In regression C2 we add *rents*. In model C3 also the *construction* and *demolition* variables are included. Finally, in model C4 the market orientation variable, *MO_rate*, is added.

All variables are statistically significant. The demographic variables explain 30 per cent of the variation in vacancy rates. Adding rents we reach 32 per cent. However *rents* have a negative sign which was not expected due to the theoretical model. New construction and demolitions adds explanatory power but the signs are also here the opposite than expected. By adding these variables the explanatory power increases to almost 35 per cent. The final model,

including *MO_rate*, reaches an explanatory power of 35 per cent. The sign of *MO_rate* is positive which means that when the *MO_rate* increases so does the vacancy rate. A positive and high *MO_rate* means that rents are above market rents and the market orientation is low. A negative and high *MO_rate* means that rents are below market rents and the market orientation is low. When *MO_rate* decreases, so does the vacancy rate.

When testing the above models for heteroscedasticity and autocorrelation we found that both these classic assumptions were violated. The OLS estimators are not reliable. The last model, C5, is similar to model C4 but estimated with a robust Prais-Winsten (AR1) regression. The signs of all variables remain the same in the estimation of model C5 but the values of the coefficients have changed. Coefficients for variables *Rents*, *MO_rate* and the *Constant* have increased some while the coefficients for variables *Popgrowth*, *Population*, *Construction* and *Demolition* have decreased substantially. The model now explains 9.3 percent of the variation in observed vacancy rates.

Allowing for heterogeneity in parameters, we partition the data into seven sub-sets due to large (>75 000 inhabitants) or small population size (<75 000 inhabitants); population growth or decline during the period and three time periods. We run the same regressions as in model C5. We find that the estimations of smaller or declining municipalities have more of statistically significant variables than the estimations of larger and growing municipalities. The time period 1998-2001 and 2002-2006 explains almost 31 percent and almost 27 percent of the variation in vacancy rates respectively while the time period 1994-1997 explains less than 3 percent. We find that the vacancy determinants affect the vacancy rate in with different magnitude depending on whether the municipality is large or small; has positive or negative population growth and in different time periods. For example: the variable *popgrowth* have substantially larger effect on vacancy rates in smaller municipalities and municipalities with population decline than in larger and growing municipalities: a decrease in population growth with 1.0 percent unit will increase the vacancy rate with 0.4 percent units in smaller and declining municipalities. The corresponding effect for larger and growing municipalities is 0.04 percent units increase of the vacancy rate. The coefficients of rents are quite stable across sub-sets except for the time period 1998-2001 when the effect more than doubles. This was the time period during which the observed vacancy rates peaked, as illustrated in one of the Box-and-whisker plots.

Finally, we calculate predicted and simulated vacancy rates for two cases of all the seven subsets above. The two cases are: observations where rents are above market rent (RAMR) and observations where rents are below market rents (RMBR). Simulated average vacancy rates are equal to predicted average vacancy rates subtracted with estimated effects of the variable *MO_rate*. The results indicate that both the predicted and simulated average vacancy rates differ between periods as well as between municipalities with different population size and different population growth patterns. The results of the calculations for smaller municipalities and municipalities with declining population with rents above market rents indicate that average vacancy rates would have been 0.37 percent lower in both cases if rents were completely market oriented. The corresponding results regarding large municipalities and/or municipalities with population growth with rents below market rents indicate that average vacancy rates would have been 0.26 and 0.22 percent respectively higher if rents were completely market oriented. These results reflect welfare losses in both types of municipalities.

The problem especially addressed in this paper is whether the rent controlled rent level also causes welfare losses in municipalities with declining population. We find that it does. In other words there are welfare losses due to rent control both in attractive areas and less attractive areas in Sweden.

The contributions of this paper are threefold. Firstly there is no previous study on the determinants of vacancy rates in the rental housing market in Sweden. Secondly we distinguish between growing and declining regions and find interesting results. Thirdly we explicitly analyze the occurrence of welfare losses on less attractive submarkets in Sweden. This is a kind of welfare loss not previously analyzed in the literature on rent control or rent regulation. Further research will hopefully show whether these markets bear the most parts of the welfare losses in the Swedish rental housing market or not.

The research ideas of this paper concerning determinants of vacancies stem from future research suggestions in my monograph, see essay II. Turner (1992) generated an interest in studying the phenomenon 'rents above market rents'. This paper developed into that possibility. Roland Andersson wrote the literature review and presented the theoretical model in section 4. Mats Wilhelmsson designed the econometric models and ran the estimations in the first version of the paper. I obtained new and detailed data on rents and ran the extended estimations of the revised version. Discussions of results and policy recommendations were created together. I was the editor of the paper.

3. Resumé

This compilation dissertation comprises analyses of vacancies and rents in a rent controlled housing market. High vacancies are still (2009) a problem in smaller municipalities in Sweden, while larger municipalities experience very low vacancies at present. The subject of rent setting is highly relevant in the general debate in Sweden, as well as in the rest of the world. Recent international research papers on rent control are numerous while research on vacancies seems to have had the peak during the nineties. In section 3.2 some recent papers are discussed in relation to the questions and results of the essays in this thesis. Recent changes and current propositions of changes in the rent control system are described in section 3.1. Discussion of results follows in section 3.2.

3.1 Recent changes and current proposed changes of the Swedish rent setting system

Two Governmental Official Reports on the rent setting system have been published during the first decade of the 21th century: the first one in 2004 (SOU 2004:91) and the second in 2008 (SOU 2008:38).

The tasks for the committee starting their work in 2003 was to consider some changes of the regulation for residential rent setting within the framework of utility value system. One of the four tasks given to the committee was to investigate whether special regulations should be implemented to determine the rents for apartments in newly constructed dwellings (SOU 2004:91 pp 12-22).

The problem noticed was that the norm of comparison in the rent setting system had caused insecurity for landlords in budgeting for construction projects. The worry was that this insecurity possibly contributed to a very low number of new dwellings constructed. If the rents in the newly constructed apartments were higher than in comparable apartments owned by municipal landlords, the tenants could bring the rents to the rent tribunal and have them decreased. Thus, the landlords could not be sure of the size of the rental income.

The committee proposed an exempt for the rent in newly-built residential apartments to be determined in accordance with the utility principle. The rent must then be set in agreement with the Swedish Union of Tenants and the exempt will be valid during a ten-year-period. This proposal became a government bill and came into force the 1st of July 2006.

The mandate for the committee starting their work in 2007 was to examine the operating conditions of non-profit housing companies and whether the Swedish system of municipal housing companies are in accordance with EC law, in special regarding state aid and competition (SOU 2008:38 pp 25-44).

The committee proposed firstly to abolish the rent-normative role of municipal housing companies. The normative role should be enlarged to all collectively agreed rents on an extended geographic area, an aggregation of municipalities instead of a single municipality. Maintaining the utility value system, the committee opened up for a couple of changes, proposing that rent increases should be possible when there are long housing queues and persistent excess demand and “there should be a latitude for rent decreases” where high

vacancy rates demonstrates excess supply. For the protection of tenancy rights, rent increases were proposed to be maximized to five percent a year.

At earliest the 1st of January 2010 these proposals can come into force.

The Swedish Union of Tenants (Hyresgästföreningen) and the Swedish Association of Municipal Housing Companies (SABO) cooperate in a project to develop a computer-aided model for what is called systematic rent setting. The model seems to be built on similar ideas as those of quality rent setting which was initiated by large municipal landlords in Göteborg and Malmö that is a methodology to achieve rents in better agreement with tenants' perception of utility value of apartments and neighbourhoods. As these negotiating parties on the rental housing market now cooperate in creating this *modus operandi* it seems to be a convergence towards a broader consensus concerning the need for improved decision basis in rent setting.

3.2 Concluding discussion

Natural vacancies as a concept have been theoretically defined in essay II and a complete vacancy terminology is suggested covering both market structures perfect competition and monopolistic competition. The concept of natural vacancies is further developed in essay III, shown to be relevant also in the market structure of monopoly. The monopoly produces higher vacancies in the profit maximizing solution than the market structure perfect competition, given the same shape of the SRAC function.

Municipal landlords' apprehension of characteristics of submarkets with high vacancy rates, as shown in Essay I, supported the idea that vacancies are not uniformly distributed not only amongst, as is evident in public data, but also within municipalities. The reported characteristics of the submarkets with high vacancy rates were: peripheral location, construction years 1964-1975, high rents, social problems and large scale buildings. These findings became a basis for problem formulations in further studies on rent setting in less attractive areas: how to alter relative rents in a municipality through negotiations (essays IV and V) and how rents above market rents affect vacancy rates (essay VI).

Other results of the survey in Essay I concerned landlords' adjustment behaviour. Confronted with high vacancy rates many municipal landlords changed their pricing strategy during 1990-1994. Price discrimination among groups of tenants was introduced in forms of temporary discounts on rents offered to new tenants and young tenants. The issue of price discrimination in relation to market structure is discussed in connection with classifying adjustment measures in Essay I and also treated in the paper on monopoly, essay III. These kinds of behaviour of landlords indicate market power as in market structures monopolistic competition and monopoly. These analyses are in accordance with the recommendations of Arnott (1995) in taking into account that the housing market is imperfectly competitive.

The case of Göteborg in the papers on negotiated rents (essays IV and V) verify the hypothesis that, in some municipalities, rents among neighbourhoods are differentiated and thus can be brought into better accordance with tenants' perceptions of housing and neighbourhood quality within the current rent setting system. That is, the local negotiating parties can change the rent gradient, the relative rents in the municipality through purposeful work. The simulated rents in Luleå (essay IV) illustrate that relative rents among

neighbourhoods has little accordance with tenants' perceptions of housing and neighbourhood quality.

It can be assumed that vacancies are more uniformly distributed among neighbourhoods in a municipality if the rent levels are more correlated with tenants' perceptions of housing and neighbourhood quality. This assumption is to some extent verified in the last paper of the dissertation, essay VI. The results of predicted and simulated vacancies show that in smaller and/or declining municipalities with rents above market rents, vacancy rates are too high and in larger and/or growing municipalities with rents below market rents, vacancy rates are too low. This indicates welfare losses in both types of municipalities. An effective tool to reduce both these welfare losses would be purposeful work, similar to what is being done in the municipality of Göteborg: measuring housing and neighbourhood quality and aiming at, in the annual rent negotiations, altering the rent levels accordingly.

Why do we have rent control in Sweden? According to Lind (2001) the motive is segregation related- all kinds of households should be able to afford renting an apartment in attractive areas. The aim of the Swedish rent setting system, as stated in the introduction of essay IV in this thesis, is that the residents' general preferences should govern the rental structure.

So are the motive and aim of the rent control and the rent setting system fulfilled?

As shown in essay VI in this thesis, rents and vacancies are low in areas with high demand and in areas with low demand rents and vacancies are high. It seems to be a situation in which many households can afford renting an apartment in attractive areas but few can get hold of an apartment in attractive areas. On the other hand, not all households can afford an apartment in a less attractive area but many households can get hold of one.

The question raised by Persson (2003) seems relevant: How and to whom is the rent controlled apartments allocated in practice and over time? Persson argues that the allocation mechanism is central to the question whether rent control causes more or less segregation than a free market. He says that: "If apartments are allocated by connections, and connections are highly correlated with income, we might even observe exactly the same income segregation in a free market as in a controlled one - the only difference being that in the latter, the rich would pay lower rents, and the landlords correspondingly lower taxes." So, the bottom line is the actual functioning of the system. The author means that this matters more than political rhetoric.

In a paper by Lind and Hellström (2006) the authors compare two cities in Sweden that since 1992 have had different ways to distribute rent increases: Stockholm and Malmö. In Malmö there has been an effort to differentiate rents increases among neighborhoods: relatively higher increase in attractive than in less attractive neighborhoods. In Stockholm there has been no such agreement between the negotiating parties on the rental housing market, thus the rents in all neighborhoods in Stockholm have had the same percentage increase. The conclusion of the study is that the results strengthen a story like "increased income differences in a society will be reflected in the housing market both in a system with more regulated rents and a system with more market oriented rents. Even if there is a rent regulation it will be possible for higher income groups to get hold of attractive apartments." (Ibid p. 188).

Similar findings as in Lind and Hellström (2006) are reported by Glaeser (2003). With data from New York, New Jersey and California, he discusses different outcomes of rent control

and segregation depending on whether the city is getting richer or if it is declining. He argues that the best case scenario of rent control and integration is when a community is getting richer and a few poor people can continue to live there because they are in possession of a contract with low rent. Glaeser finds some evidence that rent control provides such low rent places within costly cities. But these apartments tend to be occupied by older people and not by families with children that might gain more from economic integration. He finds, however no evidence that neighborhoods in rent controlled cities are less segregated than neighborhoods in free market cities.

The rent level in less attractive areas is seldom mentioned in the Swedish debate. However, in papers connecting rent control and segregation above, Glaeser (2003), Persson (2003) and Lind (2003), we can find distinctions made and differences in results shown between attractive and less attractive areas. Glaeser (2003) stresses different outcomes of rent control and segregation depending on if the city is getting richer or if it is declining. He argues that "the only apartments that are likely to be impacted by rent control in a declining city are the relatively attractive apartments within the city that are likely to attract richer inhabitants." His reasoning seems to be in accordance with this quotation from Malpezzi and Turner (2003): "In Sweden it is generally believed that the regulated rent level is not binding on a number of local housing markets although it is strongly binding in the central parts of Stockholm."

Lind (2003) analyzes the effects of rent regulation on new construction in Stockholm during the years 1995-2001. Lind gives an account for economic fundamentals during these years and demonstrates in a general explanatory model how factors of demand, supply, institutional factors such as regulations, taxes and also the current housing market situation possibly can affect new construction. His conclusions are that in attractive areas of Stockholm, the fact of the existing rent regulation did probably not affect new construction at all. There were other factors like a strong demand from wealthy home-owners wanting large condominiums in the inner city of Stockholm that was the driving force of the new dwellings built. In the less attractive suburban areas though, there might have been a reduction in new construction during these years due mainly to higher risk for future vacancies if demand would fall. Lind has a section treating "increased fluctuations in less attractive areas when demand changes". The reasoning is that when demand falls in areas further out in the region the vacancies will occur in the new production because of higher rents there. This scenario illustrates the risk to build new dwellings in less attractive areas.

But why is there such a silence in Sweden regarding the different outcomes of rent control on attractive/larger/growing cities and less attractive/smaller/declining cities?

It has been made evident through the findings in this thesis that vacancies assemble in less attractive areas (Essay I) and that municipal landlords exploit market power by setting rents above market rents in smaller and/or declining municipalities in Sweden (essay VI). In addition it has been shown that there are welfare losses due to too high vacancy rates in smaller and/or declining municipalities with rents above market rents and welfare losses due to too low vacancy rates in larger and/or growing municipalities with rents below market rents (essay VI). While the latter welfare loss is anticipated due to rent regulation, the former is not. As the size of the latter welfare loss has been calculated in a recent paper, (Andersson and Söderberg, 2008) it is an urgent matter to calculate also the size of the welfare loss of rents above market rents in smaller municipalities and/or municipalities with decreasing population. The size of these two welfare losses and the relation between them should be an interesting contribution to the current debate.

Inefficiently high vacancy rates were also the results in a paper by Arnott and Igarashi (2000). Arnott and Igarashi found that in their model, a reduction in rent below its uncontrolled equilibrium was welfare improving.

So, now seems to be the accurate time to discuss the different outcomes of rent control on attractive/larger/growing cities and less attractive/smaller/declining cities.

To elucidate what the welfare loss due to rents above market rents in smaller and/or declining municipalities possibly implies, I will borrow the argument made by Persson (2003) above, and add the text in bold letters: *If apartments are allocated by connections, and connections are highly correlated with income, we might even observe exactly the same income segregation in a free market as in a controlled one- the **two differences** being that in the latter, the rich would pay lower rents, the landlords correspondingly lower taxes **and the poor will pay higher rents.***

An impression is that what we do when we expect rent control to 'fix' economic segregation is to rely on the rent control system to reduce income inequalities. Or clearly spoken: combat poverty. This might be a burden too heavy for a rent control system to bear if not supported by all other parts of the economic policy in the society. Bengtsson (2003) and Glaeser (2003) link the problem of economic segregation to other political areas than the housing market: education and job opportunities.

The results of the essays in this thesis has shown that the requirements of the rent control system- to combat economic segregation- and the aim of the rent setting system- that the residents' general preferences should govern the rental structure- are far from accomplished.

But this is not solely due to the system itself. It is also due to how the rules of the system are practiced. The rental structure was meant to be governed by the general preferences of the residents; instead the costs of the municipal housing companies became the norm and basis for rent levels. In letting the prime costs of municipal housing companies govern the rent structure in the whole country the rent levels as well as the rent gradient in the municipalities became completely twisted. The twisted rent gradient caused vacancies to assemble in less attractive neighbourhoods and caused long queues in attractive neighbourhoods.

Controlled rents based on companies cost structures on an imperfectly competitive market and in addition, in the Swedish case, with the tendency of a monopoly structure in many submarkets, might not be the best setting if the aim is to keep rents low in less attractive areas. The one part that has been left with the difficult task to argue against and negotiate about costs is the Union of Tenants.

In my view, it is not until now that the aim with the rent setting system to base rents on tenants perception of use-value is about to be accomplished. The current efforts of many municipal landlords and many local branches of the Union of Tenants' to create a solid knowledge of tenants perception of housing and neighbourhood quality as a basis for altering the rental structure, is the way to go. The Municipal Housing Group Förvaltnings AB Framtiden, the Private Housing Companies and the Union of Tenants' in Göteborg together set a good example of such purposeful work. Other examples of systematic rent setting, utilizing different kinds of point systems, are the municipalities of Malmö and Umeå.

The current cooperation between the Swedish Union of Tenants and the Swedish Association of Municipal Housing Companies in creating a model of computer-aided systematic rent setting is encouraging and is exactly the kind of cooperation for a more transparent rent setting that was recommended in essay IV in this thesis.

Policy recommendations based on results of this thesis and the above discussion are twofold. There are ways to improve the practice of the existing rent control system in Sweden and thereby decreasing the welfare losses shown in this thesis. On the other hand if the system benefits wealthy people while the costs are born by poor people, as is indicated, then that must be regarded as a major failure. In that case the question must be: What is beneficial with the rent control system in Sweden?

Policies recommended are:

- An evaluation of both welfare losses caused by rents below market rents and rent above market rents should be carried out in terms of who benefits from and who pays for these welfare losses.
- Given the existing rent control system: the current work of the negotiating parties on the rental housing market to alter relative rents based on systematic measurement of the quality of apartments, buildings and neighbourhoods paired with knowledge on tenants' perceptions of those qualities should be encouraged and continued until implemented in all municipalities. The resulting rent levels and rent gradients will presumably redistribute vacancies and housing shortages among municipalities as well as between neighbourhoods within municipalities and thereby contribute in reducing the welfare losses.
- There is a need for constituting a rule aimed at protecting the tenants in less attractive and/or smaller and/or declining municipalities and neighbourhoods within municipalities against landlord monopoly power, i.e. pricing above market rent. In the latest committee proposal (SOU 2008:38), the wording of the phrase: "*there should be a latitude for rent decreases where high vacancy rates demonstrates excess supply*" is too weak considering the probable huge size of the welfare loss caused in these markets by landlords pricing above market rent.

4. Some observations for future research

At this point, most of my questions concerning vacancies in the rental housing market are answered. However, the papers concerning rent control read for the literature reviews in essays 4, 5 and 6 and also the results of those papers became sources of new questions within the area of rent control and economic segregation.

Persson (2003) brought up an important issue for discussion: How does the allocation system of vacant apartments function? Who gets the vacant apartments? Lind and Hellström (2006) argue that people with high incomes find one way or another to get hold of an apartment in attractive areas. If landlords can choose they are likely to let the vacant apartment to tenants with higher income. A quick glance at the distribution system in Stockholm gives the information that landlords can choose tenants for large share of their vacant apartments. The housing queue is administered by the Housing Service Agency in Stockholm. Private landlords are recommended to give 50 per cent of vacant apartments to the Housing Service Agency. Two of the three municipal housing companies have a commitment to leave two thirds of vacant apartments to the Housing Service Agency. The third municipal housing company is permitted to distribute all their vacant apartments to their own queue of tenants. There are general and special economic criteria for tenants to have a chance on a rental contract from municipal landlords. General criteria are: income before tax equivalent to three times the annual rent or an approved guarantor, no record of non-payment of rents, good references from the previous landlord. What happens to those prospective tenants who do not fulfil these criteria? How large is the share of contracts written with social authorities in Swedish municipalities? And the housing queue, what information on the demand of dwellings can it provide?

The literature on tenants' preferences reports on a similar pattern internationally: 'safety and security' is one of the most highly ranked preferences. What do tenants mean by 'safety and security'? The concept of social capital seems to comprise that preference. Good relations to neighbours, co-operation, to take actions together constitute social capital. To study the existence of social capital in housing neighbourhoods is a challenging area of research.

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