



Sustainable renovation of residential buildings and the landlord/tenant dilemma



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HIGHLIGHTS

- There are plenty of opportunities to overcome the landlord/tenant dilemma.
- The principal/agent problems can only be overcome with a package solution.
- An array of different tools must be integrated and used in cooperation.
- Legislative changes, financial incentives and better dissemination of information.

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ABSTRACT

The landlord/tenant dilemma arises when the interests of landlords and tenants misalign and is one of the greatest barriers hindering the development of sustainable renovation of residential buildings in Europe. The aim of this research is to investigate how regulatory changes and contractual solutions can help solve the landlord/tenant dilemma in relation to sustainable renovation of residential buildings, and how the general awareness of sustainable renovation can be increased. Particular focus is on whether tools like energy performance contracting and energy labeling can help solve the landlord/tenant dilemma. The research was done in relation to the specific situation in Denmark, but theory, information and experiences from other countries were included. The results show that there are plenty of opportunities to overcome the landlord/tenant dilemma, but principal/agent problems can only be overcome with a package solution. In the Danish national context the package solution must consist of legislative changes, financial incentives and better dissemination of information. Therefore, an array of different tools must be integrated and used in cooperation to overcome the dilemma.

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1. Introduction

Buildings account for approximately 40% of Europe's total energy consumption (EU, 2010) and because of their long lifetime many are and will become energy inefficient and technically obsolete. Sustainable retrofitting and renovation, also known as energy renovation, is therefore of great importance. The energy inefficiency of a large part of the current building stock is consequently a great contributor to the current climate changes. In addition, the building sector is expanding and is therefore likely to increase its energy consumption (EU, 2010). Thus reducing energy consumption in buildings is vital, not only for the environment, but also to minimize energy dependency.

There are vast opportunities to take financially profitable measures to improve energy efficiency which are not being realized in current

markets. With rising energy prices, which increase the economic importance of energy consumption and a shift in mentality towards energy efficiency, the awareness of the subject has increased significantly in recent years. The greatest problem is however to convince decision makers such as building owners, property investors and facility managers to implement profitable solutions. The questions are therefore how can building owners/facility managers be motivated to renovate buildings for better energy performance, how can sustainable retrofitting and renovation be brought to the market, and how can sustainable retrofitting and renovation be further motivated by economic reasons? The answers to these questions can vary a lot depending on the owners, the occupation and types of buildings and the national context. This paper therefore focuses on Danish rented residential buildings where one of the main barriers is the landlord/tenant dilemma. The aim is to give an understanding of why the problem occurs and how it can be overcome. There is however no one simple solution to the dilemma and therefore many concepts, tools and solutions have to be considered.

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A amount of research has been made on why sustainable retrofitting and renovation is not being realized. The research has mainly focused on identifying barriers to sustainable retrofitting and renovation, which has led to the conclusion that the problem is not a lack of technical solutions but rather due to informational barriers and lack of economic incentives. One of the largest barriers is the landlord/tenant dilemma which can be both informational and economic. CONCITO (2011), Denmark's green think tank, in 2011 published a report on the dilemma. The report recommended regulation and policy changes to overcome the problem. The findings of this paper are not intended to replicate the results of the CONCITO report but rather build on it by focusing on some of the specific tools that can be used to overcome the problem. The European Union (EU) has encouraged the use of energy labeling and energy services to achieve energy efficiency in buildings. Consequently, energy labeling and Energy Performance Contracting (EPC) and ESCO (Energy Service Companies) concepts (in the following grouped together as ESCO) have been developing and gaining importance in the Danish renovation market. This paper will therefore mainly focus on how these established tools along with a few prospective tools can help in overcoming the landlord/tenant dilemma. Hence, the research questions are how can regulatory changes and contractual solutions help solve the landlord/tenant dilemma? How can ESCO contracts help solving the landlord/tenant dilemma? How can energy labeling help solving the landlord/tenant dilemma? And, how can the general awareness of sustainable retrofitting and renovation be increased?

2. Methodology

The landlord/tenant dilemma occurs when a landlord and a tenant have difficulties in agreeing upon a common strategy for energy-efficiency improvement of a property. In Denmark, tenants typically pay for the energy consumption of the property, which highly depends on the condition and the infrastructure of the building and how it is used. As the landlord does not pay for energy consumption, he has few incentives to invest in the energy efficiency of the property. However, sooner or later, energy renovations are required, and in most Danish private-owned buildings investments in energy renovations are made by the landlords, but fully financed by the tenants through rent increase. As tenants are not the property owners, most of them are having difficulties in seeing why they should fully finance something that does not only benefit them. On the other side, landlords are claiming that most of the benefits of energy renovations are going directly to the tenants, and use that as an argument for increasing the rent. The challenge here is to find the “right” balance between landlord's and tenant's interests in a specific case, and figure out how much value for money different parts really obtain after the energy renovation is completed.

The above-mentioned problem was researched by investigating the background of sustainable retrofitting and renovation of buildings and the landlord/tenant dilemma in relevant literature. The theoretical framework is based on organizational economics including the principal-agency theory and related concepts (Milgrom and Roberts, 1992). Based on the aforementioned CONCITO report and suggestions by the EU, possible solutions to overcome the problem were investigated. To build upon the information obtained through the literature research, seven interviews were conducted in the spring of 2012 with several parties who could provide information and insight into energy renovation and what parts of the theory could be used in practice. The selection of the interviewees aimed at gaining information and opinions from various parties with experience and knowledge about the tools and methods that can possibly overcome the landlord/tenant dilemma. The interviewees

comprised of a consulting engineer, a representative from the think tank CONCITO, a representative from the Danish Property Federation, an ESCO contractor, a researcher, a representative of a municipality with an ESCO contract and a representative from a housing association with an ESCO contract. The interviews were semi-structured with a list of themes and questions prepared for each interviewee but some questions were omitted and new added during the interviews to provide open discussion on the topic. Research is additionally consolidated by 10 interviews carried out in connection with ACES, a European project about the promotion of sustainable retrofitting and renovation in the early stages (Jensen et al., 2013). Finally, a case on ESCO in a Danish municipality was studied to give insight into the pros and cons of ESCO in general and to reveal the strength and challenges of the concept to see if it is adaptable to residential housing.

3. Literature review

3.1. Retrofitting and renovation of buildings

Retrofitting of buildings is the process of replacing or adding parts of the building shell or installations while renovating is restoring the looks and performance of building parts to their original state or better. The need for renovation arises when buildings start to age, because of deteriorating materials and other external influences such as weather. The building's initial quality, use and maintenance also significantly affects, when the need for renovation arises. In addition, if buildings are not maintained sufficiently there can be an accumulated need for renovation. Lastly, renovations can be initiated when buildings need to be improved or transformed to meet the demands of new occupants or operations. Energy renovation is renovating and/or retrofitting with the aim of improving the energy performance of a building, i.e. sustainable retrofitting and renovation of a building. In addition to lowering the energy consumption, energy renovations should guarantee the market value of the buildings with rising energy prices and increased requirements in building regulations (BiD and GI, 2011). In northern Europe heating and electricity account for the majority of buildings' energy consumption, therefore most energy renovation measures aim at improving the buildings' performance in relation to thermal losses and electricity consumption. These measures include e.g. improving the thermal insulation of building components, replacing windows and glass, replacing technical installations, changing energy supply, and improving the operation of the building (DTU-BYG, 2010).

3.2. Stakeholders

The primary stakeholders in sustainable retrofitting and renovation of buildings are the owners, facility managers and occupants. The building owner will have to invest in the renovation and is compensated with the increased value of the building and possibly higher rent income. The occupant(s) will get lower energy consumption and hence a lower energy bill, in addition the indoor air quality and comfort are likely to improve. If the occupant is a tenant the rent will probably rise to pay back the owner's investment. The government is also a stakeholder as its goal is to decrease the carbon footprint of the state. The government might though have to spend some money to initiate the less profitable renovations. In Denmark, energy suppliers are obliged to contribute to significant annual savings and can therefore gain from energy savings. However, less energy consumption means less income for them. With increased energy renovations the building and renovation industry gets more production and sales, and consultants and contractors get more work. Increased renovations

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