Universität Basel

Research Project

FV-71 Energy Efficiency Labeling of Residential Buildings in Switzerland: An Analysis of Rent Premium and its Determinants

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Principal Investigator(s) Gantenbein, Pascal ; Kachi, Aya ;
Project Members Oeri, Fintan ; Melzig, Mine ; Blum, Andrea ;
Organisation / Research unit
Departement Wirtschaftswissenschaften / Finanzmanagement (Gantenbein)
Departement Wirtschaftswissenschaften / International Political Economy and Energy Policy (Kachi)
Department
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With an estimated 50% the building sector accounts for the largest share of energy consumption in Switzerland (about 40% in the US). As part of sustainability goals, both scientific and policy communities have so far strived (1) to develop energy-efficient building technologies (supply of technologies), and (2) to change the energy consumption behavior of residents and tenants (reduction of demand). But supply of technologies does not come to fruition, unless suppliers employ new technologies. And reduction of demand has limited impact, unless tenants can live in energy-efficient infrastructures. In fact, we currently lack a comprehensive understanding of what it takes to increase the supply of low-energy-consuming properties. Therefore, it is worth investigating the market- and property conditions under which investors are willing to pay for energy efficiency in buildings.

Investments in energy efficiency are only interesting for investors if there is a financial incentive such as a rent premium. Existing rent premium analyses are concentrated in the commercial sector and the US market. Though some controlled for more detailed building characteristics than others, Miller et al. (2008), Eichholtz et al. (2010), and Fuerst et al. (2009) all found about 3 to 9% rent premium for certified green buildings. Reichhardt et al. (2012) added over-time trends of rent premiums. The only large-scale *residential* rent study in the US is Kahn and Kok (2013) with 1.6 million single-family house cases and estimates a 2.1% premium. In the Swiss context, Salvi et al. (2008, 2010) showing a 6% residential rent premium are the only studies coming close to our research interest. Yet, the studies are non-peer-reviewed private market analyses, and the sample size is limited to 150,000 and the ZH area. Beyond these data limitations, we identified two important issues to be tackled in rent premium analyses. First, Salvi et al. (2010) shows decreasing premiums of the traditional Minergie label over time. As building standards (both due to regulations and social norms) increase regardless of green certificates, the result may not be surprising. By controlling for buildings' actual energy performance and by exploiting newer data that include stricter Minergie subcategories, we shall re-assess the over-time trend of rent premiums. Second, the real estate literature has shown that rents are geographically autocorrelated (e.g. McCord et al. 2014). Therefore, we can deduce that, all else equal, the occurrence of a newly Minergie-certified building can have a positive spillover effect on the rents of proximate buildings that are not certified. The existence and degree of this (perhaps unwanted) spillover has never been estimated.

With the new comprehensive dataset (ca. N=800,000) on asking rent prices and detailed building characteristics that we construct (see Section 7 & 8 for more details), the following 3 related research questions can be answered in the Swiss residential market context.

RQ1: What is the direction and extent of rent premiums associated with Minergie labels? Does the label generate its own premium, on top of the actual energy performance premium?

RQ2: What is the intertemporal trend of Minergie-associated rent premiums? Given that buildings' energy performance generally improves over time, do a newer and stricter Minergie sublabels gain more premiums, compared to the older, original Minergie label?

RQ3: Given that rents are spatially autocorrelated, does a new Minergie label obtained by a building generate positive spillover effects on rents of proximate buildings that are not certified?

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