RentalCal – European Rental Housing Framework for the Profitability Calculation of Energetic Retrofitting Investments

DELPHIS
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RentalCal: the objectives

- Introduce the **rental housing perspective** in profitability assessment of energy efficiency investments
- **Improve transparency** of national investment conditions
- **Disseminate knowledge** on green value/premium issues
Rental Housing Stock

- Size, age and energy performance of rental housing stocks vary widely across the RentalCal countries
- Analysis are based on national census data, other statistical data and IEEA project TABULA
- Definition of a typology of the rental housing stock per country (according to building type and building age)
- This typology is used to estimate energy saving potentials and investment costs
Share of rental dwelling units (of total housing stock)

- Czech Rep.
- Denmark
- France
- Germany
- Netherlands
- Poland
- Spain
- UK

0% - 60%
Current Energy Efficiency Measures

- Building envelope (insulation, windows, doors) and energy systems (heating/DHW, renewables, ventilation)
- Some common measures but also country specific differences
Costs and Energy Savings

- Investment costs vary widely across the RentalCal countries and partly within both building categories (SFH/MFH) mainly due to differently defined standard and advanced refurbishment packages per country.

- Energy savings vary depending on climate conditions, building types and the composition of the refurbishment packages.
Legal Barriers: rent and maintenance costs

- EE modernization investment refinanced via rent increases in all countries
  - rent regulations are mainly regarded as barriers to investments (F, G, NL, UK), seen as “neutral” (by CZ, G, P), sometimes as “facilitator” (E) of energy efficiency investments

- Maintenance costs are a contractual obligation of the tenants, creating significant split incentive barriers, lowering green value margins and prolonging pay back periods for deep retrofits
Institutional Framework

- Very heterogeneous institutional framework conditions among partner countries e.g. regarding
  - Investor types and legal forms
  - Parameters of decision taking e.g. preferred profitability calculation method
  - Motivation of investors
  - Constellations for decision making
RentalCal: key findings

Tenant Related Barriers for Investments

- Demographic barriers and limited spending ability of tenants - most prominent in Spain, the UK and DK
- Low income, as a barrier to invest in green initiatives, seems to be consistent across all of the countries
- Tenants substitute away from EE
- Energy efficiency retrofits are perceived as a secondary priority by tenants in the majority of the countries, with the exception of Denmark
- Low stable energy prices – with the exception of G and CZ
Investor Related Barriers for Investments

- Inability of green value to be fully capitalised into property value - least noticeable in NL, followed by CZ and France
- Informational barriers are consistently cited across all of the countries, with the exception of the CZ
- With the exception of France, high initial capital outlay is cited as significant barrier across the majority of countries.
- Similarly, access to financial support further reduces the likelihood of energy efficiency take-up.
- High average population age, older landlords and thereby less motivated to adapt to technological change
Institutional Barriers for Investments

- No metering - this barrier is most prominent in DK (legislation change by the end of 2016) and Spain
- Lack of trust - UK, France and PL, less in Spain
- Communication issues - significant institutional barrier in NL, PL, Spain and the UK
- Cost sharing of energy efficiency retrofits - a significant barrier in DK, France and the NL
A web based application for the profitability analysis of energy related retrofits in rental housing

- Provide transparency on the profitability of individual energy efficiency retrofits
- Focus on rental cash flow modeling with green premium or other energy efficiency related rent increase
- Including subsidized funding and detailed tax/depreciation assessment
- The RentalCal tool offers an international comparative perspective
  - Data base on model building energy performance, national tax, rent setting and operating cost bearing regimes for 8 EU-member states included
  - Language localisation for 8 EU member states planned
Advanced scalability

- Target group specific use cases
  - Data base allows quick feasibility check
  - Detailed manual entry for individual case assessment
  - Link to [www.tabula.eu](http://www.tabula.eu) energy performance assessment engine

- User specific investment horizon
- User specific assumptions on future dynamics of prices and rents
RentalCal tool: the challenge
RentalCal tool: the workflow

Input Modules
- Property, Investor, refurbishment, finance, tax and depreciation, rent and operation costs
- Database guided
- User provided

Profitability Analysis
- Dynamic calculation using VoFI (Visualization of Financial Impact) methodology
- Complex Case Differentiations

Reporting Modules
- Multiple KPIs
- Break even assessment
- Risk analysis
- Target group specific output
RentalCal tool: the workflow

I. Information

Assisted Mode
- Introduction & Structure Overview
- Mode Selection
- Project, Location & Investor data input
  - Customisable type representatives and measure suggestions, energy consumption and cost estimates
  - Financial information, tenancy situation, rent increase and price/interest development

Manual Mode
- Manual input of energy consumption, refurbishment measures and costs.
  - Manual input modules (optional)

II. Input

- Detailed input modules (optional)
- Detailed input modules (optional)

III. Output

- Calculation Results
- Sensitivity Analysis
  - Monte-Carlo-Analysis

- RentalCal tool: the workflow
RentalCal tool: screenshots
Tests carried out by DELPHIS

- The moderated testing took place in France between 01.02.2017 and 25.04.2017. Five sessions were carried out:

- Public experts working in the public so-called “Plateforme de Transition Energétique” managed by local authorities advising private natural landlords (condominiums) in the retrofitting of their estates (Paris).

- Private social housing companies, Le Foyer Rémois managing social rented housing stocks located in Reims (18,000 dwellings) and Foyers de Seine et Marne in Melun (8,000 dwellings)

- Private social housing companies managing “intermediary” (intermediary between the social and the private rented) stocks (Grenoble/Echirolles). 13,000 dwellings

- Private social housing companies of a national group managing private condominiums with a mixed tenure (tenants + owner-occupiers). (France / Paris) (80,000 dwellings).
General feedback

1. The tool is especially relevant in the pre-feasibility studies when evaluating and optimizing the technical and economic specifications in order to assess the level of energy refurbishment which makes economic sense and is feasible for the landlord. But it could also be used as an ex-post evaluation.

2. The tool must distinguish the “amateur” user (the private natural landlord) and the “professional” user which on the contrary is capable to understand either the financial and/or the technical vocabulary if well explained.

3. For a private natural landlord, it’s necessary to conceive simple outputs which will be printable for the end user. Anyway, it is difficult for a non-professional landlord to use alone the tool without any assistance. It’s a key question: which targets?
4. Large housing companies sometimes finance by debt 100% of their energy retrofitting. In this case, the calculation of the Return On Equities makes no sense.

   This is why it’s recommended to have the possibility to calculate:
   - Firstly, the I.R.R. and the NPV of the investment.
   - Secondary, if equities are used in the financing plan of the investment the RoE.

5. The calculation of the horizon of reconstitution of the total amount of equities invested in the energy retrofitting is also used by large housing companies as a key element in the decision making process.

6. It is mandatory to integrate in the financial calculations, in the same table, side by side, the existing economic data of the estates before the energy retrofit (as it may remain a portion of past debt) and the new calculations provided by RentalCal and to attach the impacts on these data especially on the I.R.R. and the N.P.V. and if need be, the RoE.
7. The possibility to integrate in the calculation the implementation of renewable energies as an other source of incomes, the rents being not in this case the only source of incomes (see the recent E.U. directives on the local self-consumptions of renewable energies).

8. The webtool should be sufficiently flexible to be adapted to the financial strategies of the professionals (e.g. when the interest rate of borrowing is very low, it’s more profitable on the medium and long term not to invest equities or grants in the financing plan but to save them).
www.rentalcal.eu/tool...tool online by the end of 2017