Strategic policy packages to deliver energy efficiency in buildings – theoretical analysis and international evidence

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Energy efficiency in buildings and appliances has the potential to halve the energy consumption and greenhouse gas emissions from that sector by 2050, despite growth in building and appliance stock. However, this potential will not become reality without policy support, due to complex market chains and a plethora of barriers. What are, then, effective packages of policies and measures to stimulate energy efficiency in new and existing buildings, and appliances? In recent research, we have addressed the question in a systematic way – by combining theoretical evidence on what policy support markets need, and an international comparison on which packages of policies have worked well.

On the empirical side, the analysis starts with the barriers but also market-inherent incentives that the different types of market participants face. This enables to derive a recommended package combining the types of regulatory, economic and other policies and measures the actors need to overcome all these barriers and strengthen incentives. On the empirical side, evidence has been collected and their design and impact compared, to check if advanced countries have indeed used the combination of policies we derived from the actor-centred analysis. Finally, the model examples are used to validate the generic policy package identified in the theoretical analysis.

Specific policies for energy efficiency in existing buildings

By contrast, the task for existing buildings is two-dimensional – increasing the depth of renovation first, to savings of 50 to 80%, and then the rate of energy-efficient renovation to 2% or more p.a. – and so the policy package needs more emphasis on individual advice, incentives, and financing.