Asymmetric Information on the Market for Energy Efficiency: Insights from the Credence Goods Literature

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Many countries actively promote the adoption of energy efficient technologies in an effort to reduce energy consumption and related environmental externalities. The existing literature emphasizes that policies should target informational failure that affect investment behavior, including imperfect information about and inattention to future energy savings. We argue that many energy efficient technologies share characteristics of credence goods, as consumers do not directly observe how much savings can be achieved with alternative technologies, both before and after purchase/installation. Consumers may therefore need to rely on information provided by the supply-side of the market in order to identify which technology best suits their needs. In line with this, the sources of market inefficiencies studied in the credence goods literature can provide valuable insights for policies targeting the adoption of energy efficient technologies.

The objective of this paper is to link the literature on credence goods with that on energy efficiency investments. We start by developing a simple framework to study supply-side incentives related to the provision of energy efficient technologies. The framework predicts that the difficulty to verify realized energy savings may incentivize expert-sellers to manipulate information, and ultimately reduce the number of trades in markets for energy-transforming technologies. Next, we discuss potential remedies by reviewing empirical results from the credence goods literature, and relate these results to an empirical literature on energy efficiency. Concretely, we consider four important domains that affect supply-side behavior in markets for credence goods: (i) the degree of asymmetric information, (ii) separating diagnostic and treatment, (iii) third party reimbursements, and (iv) reputation.

The implications of our work for energy efficiency policies can be summarized as follows. First, certification schemes and labels involve a trust component, which implies that third party verification and strict liability rules are necessary for this information to be decision-relevant. Second, the provision of independent diagnostic (e.g. in the form of audits) can mitigate supply-induced inefficiencies, although the associated cost can potentially harm overall welfare. Third, the credence component of energy efficiency implies that subsidies are likely to affect pricing behavior by the supply-side of the market, which may again reduce the overall welfare of the policy. Fourth, reputational mechanisms could foster trust and improve market efficiency, and could be leveraged through independent information on realized energy and/or financial savings, for example through ex-post audits. Finally, we conclude that researchers in the energy economics literature could themselves contribute to a broader literature on credence goods by slightly re-framing their research questions.

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