Contribution ID: **122** Type: **not specified**

Consumer Inattention in Energy-Efficient Technology Adoption: Evidence from the Air Conditioner Market

Friday 27 March 2026 10:20 (20 minutes)

This study examines how the salience and structure of information shape household demand for energy-efficient durable goods in an emerging-market setting. We focus on the Indonesian air-conditioner market, where inverter technology can reduce electricity consumption by up to 40 percent yet adoption remains limited. Standard models attribute under-adoption to liquidity constraints or misperceived energy prices, but a growing behavioral literature emphasizes limited attention to multi-dimensional product attributes. We test this mechanism by embedding a discrete choice experiment in a randomized information intervention that varies the visibility and format of energy-related information.

Respondents choose between pairs of air conditioners that differ in purchase price and operating characteristics. Four experimental arms are implemented: a control group with no additional information; a treatment displaying monthly operating costs; a treatment showing the official Indonesian energy-efficiency label; and a combined label–cost format that integrates categorical efficiency grades with monetary operating expenses. This design allows us to disentangle whether information affects choices through improved beliefs about energy savings or through changes in attribute weighting driven by salience.

Reduced-form evidence shows large and monotonic treatment effects. Relative to the control group, the cost-only treatment increases the probability of selecting an inverter unit by about 2–3 percentage points, the label-only treatment by roughly 9 points, and the combined format by about 15 points. These patterns indicate that the way information is presented matters more than the mere provision of numerical data. Descriptive choice shares reveal that inverter uptake remains high even at elevated prices in the combined treatment, suggesting a fundamental change in how consumers process prices.

To uncover the underlying mechanism, we estimate conditional logit models with treatment-specific price coefficients. In the control group, the price coefficient is negative and sizable, consistent with conventional demand. Introducing operating-cost information substantially attenuates price sensitivity, while label-based treatments further weaken and eventually reverse price disutility. Under the integrated format, price ceases to operate as a standard cost attribute and appears to proxy for perceived quality once efficiency cues become highly salient. This "price-role reversal"is inconsistent with stable preferences and supports limited-attention models in which information reallocates cognitive weight across attributes.

We translate these estimates into willingness-to-pay and elasticity measures. In the control group, households are willing to pay roughly 4 million IDR for inverter technology. Cost information more than doubles this valuation, whereas label treatments yield descriptive positive valuations that should be interpreted as shifts in decision utility rather than welfare. Own-price elasticities move from conventional negative values in the control group to near zero under cost information and positive under label formats, confirming that information reshapes the demand function itself.

Heterogeneity analysis reveals that responses depend on household characteristics. Higher-income and high-usage households exhibit lower effective price sensitivity when exposed to information, consistent with greater ability to process long-run savings. In contrast, households with high electricity bills remain more responsive to upfront prices, indicating that financial stress interacts with attention constraints. These patterns demonstrate that information policies do not simply shift average preferences but modify attribute weighting in ways that vary across consumers.

The findings contribute to the literature in several ways. First, by experimentally separating label and cost channels, we document non-linear amplification when both are combined—a mechanism rarely observed in previous studies that examine each format in isolation. Second, treatment-specific structural estimates provide direct evidence that information can transform the role of price in utility, rather than merely updating beliefs about energy expenditures. Third, the Indonesian context extends attention-based theories to a developing market with low label awareness and rapidly growing electricity demand, offering external validity beyond OECD settings.

Policy implications are immediate. Integrating operating-cost information into existing labels could generate large efficiency gains without subsidies, particularly where consumers are unfamiliar with technical metrics such as EER ratings. However, positive price coefficients under salient information caution against welfare calculations that rely on standard demand assumptions. Effective policy should therefore focus on designing disclosures that guide attention rather than only improving accuracy.

Limitations include the hypothetical nature of choices and the short-run horizon of the experiment. Future work linking experimental measures to actual purchase data and electricity consumption would help quantify long-term energy savings. Nonetheless, the results provide causal evidence that inattention is a central barrier to the diffusion of energy-efficient durables and that carefully designed information can realign household decisions with lifetime cost minimization.

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Session Classification: Consumer Behavior & Tariffs