Smarter product labelling could drive market forces that encourage green innovation, according to a new study. The researchers say graded labelling schemes designed to differentiate between products based on their ‘environmental friendliness’, would increase competition between producers and reduce environmental pollution by promoting innovation.

Since the 1970s, environmental certification and labelling schemes have been used to identify those products that have the least impact on the environment. Although some schemes use graded labelling – such as energy efficiency labels given to refrigerators and washing machines – many use a simpler binary system, where by a product either does or does not have a single-grade label. The EU’s Eco-label system, for example, awards labels to only the most environmentally friendly products in each product group, covering everything from shampoos to computers.

Now economists claim that graded eco-labelling is the most effective scheme for encouraging producers to develop greener innovations under standard market competition. Their theoretical model investigated the effects of ecolabels on competitiveness. It predicted market behaviour in three alternative scenarios: no eco-labelling, binary eco-labelling and graded eco-labelling. For each scenario they show that, over time, competition drives an increase in quality of the products available, but only in the third scheme – the graded scheme – does the environmental quality continue to increase.

The model assumes that there are two types of consumer: environmentally friendly or ‘green’ consumers (a minority), who buy greener products where possible. Mainstream consumers are assumed to use the environmental attribute of a product in their purchasing decisions as a tie breaker among the highest scoring products on all other attributes. This means that, all else being equal, consumers would choose environmentally friendly products. In addition, the model considers an ‘environmentally adverse’ landscape, where improvements in one attribute entail the worsening of others. For example, green innovations can lead to higher prices, and innovations resulting in cheaper products can generate greater pollution.

In the scenario with no eco-labelling, the model predicts no increase in environmental quality. Since environmentally friendly products cannot be distinguished from other products, there is no incentive for producers to develop and adopt environmentally friendly technological innovations. In the binary eco-labelling scenario, only a few companies enter the green market, as there is only limited demand for green products from green consumers. This means environmental quality plateaus quickly due to lack of competition. Technological competition ensures that the quality of other factors continues to improve.

In the graded eco-labelling scenario, however, increased competition ensures that eco-credentials become the determining factor in purchasing decisions, despite increases in the quality of other factors. In this situation, every producer is forced to consider its environmental responsibilities and will need to continuously innovate to achieve and maintain green status. Although a product’s greenness is not the main factor that influences purchase for most consumers, graded eco-labels can make the environmental aspect of a product become a stronger influence.

The results also suggest that ecolabels which have been defined and assessed by a trusted external organisation will lead to better product sales than ecolabels that have been ‘awarded’ by the producer themselves. The study highlights the need for more attention to be paid to consumer decision making, as opposed to producer behaviour, in economic theory and modelling.


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Themes: Sustainable production and consumption