Food Labeling Standards have Significant Welfare and Distributional Impacts

Discussions on the appropriate regulatory norms for genetically modified (GM) foods date back to the early 1980s. Thirty years later, a consensus on what such norms should be remains elusive. Some countries, including the US and Canada, consider GM foods substantially equivalent to their conventional counterparts and do not require segregation and labeling of these products. Others, including the EU, Japan, South Korea, New Zealand, Australia, and China have introduced mandatory labeling regimes.

Not all mandatory labeling laws for GM foods are "created equal," however, as they differ substantially in their standards. While the EU requires labeling of processed foods containing more than 0.9% GM material, South Korea and Japan mandate labeling for food products that contain major ingredients with more than 2% and 5% of GM material, respectively. The establishment of these thresholds has, generally, been a highly contentious process. While the underlying causes of discord seem to be rooted in trade and political considerations, little is known about the market and welfare implications of different purity thresholds. What recent research has shown is that purity thresholds impact the production and segregation costs in non-GM supply channels (cost effect) as well as the consumer valuation of non-GM foods (utility effect).

CAFIO-PRG Research

A joint CAFIO-PRG and EMAC-MU study analyzes the market and welfare effects of purity thresholds for non-GM foods. In particular, the analysis focuses on the effect of allowing the presence of GM material in non-GM foods on the prices and quantities of the GM and non-GM products, the profits of the product suppliers, and consumer welfare. In doing so, the study explicitly considers the empirically relevant (1) heterogeneity in consumer preferences for GM products, and (2) imperfect competition in the supply channels of interest.

CAFIO-PRG Findings

Our research shows that:

- A decrease in purity standards (i.e., increase in tolerance for GM material in non-GM food) reduces the price of non-GM products and has an effect on the equilibrium price of GM products, the quantities of GM and non-GM products, and the welfare of the groups involved.
- The market and welfare effects of reduced purity standards are case-specific and dependent on (a) the relative magnitude of the cost and utility effects, (b) the distribution of consumer preferences and the level of aversion to GM products, (c) the production, processing, and marketing costs along the GM and non-GM supply chains, (d) the segregation and labeling costs of the two products, and (e) the market power present in the supply channels of the GM and non-GM products.
- Contrary to what is believed, an "as low as technically possible" threshold does not necessarily correspond to maximum consumer welfare. Under certain circumstances, it is possible to improve the welfare of *all* GM and non-GM product consumers through a more liberal purity threshold for non-GM foods.
- A change in purity standards can create winners and losers among the consumers and the food suppliers. The identity of winners and losers is determined by the relative cost and utility effects. For instance, while a reduction in purity standards under low segregation costs and high consumer aversion to GM products results in benefits for suppliers of GM products and losses for consumers of GM and non-GM products and suppliers of non-GM products, the same reduction under high segregation costs and a low aversion to GM products has the exact opposite outcome for the interest groups involved.
- At high purity levels, even small changes in purity standards can have large welfare and distributional impacts

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