

Outline and Emerging Issues

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The rapid expansion of world trade over the last 50 years has come with a growing recognition that there exist significant cross-border differences in the choice of production techniques. Meanwhile, consumers' concern for conditions of work and product standards also acquires new meaning with the international division of labor made possible through trade. Broadly, these concerns come under two categories: those that relate to environmental performance and food safety, and those that concern labor standards and human rights. In the search for a market-based mechanism that can reconcile these concerns, environmental and social labeling schemes have emerged to serve as valuable sources of information concerning the environmental and social impacts of production processes and methods. Notwithstanding the rapid growth of these labeling initiatives in recent years as a source of consumer information, the supply side impacts of these schemes have also begun to receive attention. In this context, eco-labeling is now widely used to promote environmentally friendly production methods and to ensure food safety standards, while social labels are seen to promote working conditions that are consistent with internationally recognized minimum standards, and that no children have been employed.

Traditional labels emphasized one particular environmental or social aspect of the life cycle of a product, for example, the non-use of a specific input, pesticide or chemical fertilizer. Recent labels tend to follow a more comprehensive and multi-criteria approach. Here, the whole life-cycle of a product including the production and process methods (PPMs) is typically being described. This life-cycle approach takes separately into account production and processing stages, and a variety of types of environmental aspects: resource and energy usage emissions, waste creation or nuisance. In addition to these environmental claims, other process attributes such as animal welfare, biotechnology, packaging, as well as the impact on working conditions and social welfare are increasingly being considered in labeling schemes.

The attractiveness of environmental and social labels stems from their voluntary nature and market-driven approach to achieve environmental and social goals. Through product prices that reflect green and social preferences for consumers, the argument goes that labeling schemes have the potential to realize a shift towards greener and socially conscious produc-

tion techniques¹. In contrast to existing trade-related instruments like tariffs, quotas and sanctions, environmental and social labeling takes advantage of green consumerism and the social awareness of consumers and can have the potential to induce voluntary adoption of eco- and socially-friendly production techniques. On the other hand, environmental and social labeling may also give rise to trade repercussions when labeling standards differ across trading partners, and constitute a source of multi-lateral coordination failure. From a policy standpoint, nevertheless, labeling has become the preferred instrument for solving high profile trade disputes amongst members of the World Trade Organization (WTO), as evidenced by the tuna-dolphin dispute between Mexico and the United States (US) and the EU-US dispute over the import of hormone-treated beef from the US. This emerging trend makes it even more imperative to take a closer look at the benefits and limitations of product labeling in the governance of global trade.

Starting in the mid 1990s, the initial theoretical work on eco- and social labeling focused primarily on the prospects and problems of eliminating information distortions so that market prices and associated production responses can truly reflect consumer preferences. The potential impact of labeling, therefore, hinges on at least two sets of issues: (i) the size of the price premium that consumers are willing to pay for the attributes advertised via labeling, and (ii) consumer and producer receptiveness to the labeling initiatives themselves. In particular, empirical studies carried out in consumer markets of developed countries by Nimon and Beghin (1999), Teisl, Roe and Hicks (2002), and Shams (1995) show that the willingness of consumers in developed countries to pay for labeled products has either been non-existent or too low to support claims that labeling can induce a change in production technology. Subsequent evaluation of the benefits of labeling has raised additional concerns, such as (i) label fatigue, (ii) fraudulent environmental claims on labels, (iii) labeling-induced unfair competition or green protectionism and (iv) claims of a lack of transparency and rising transaction costs for consumers and producers alike.

A possible reason for this disconnect between earlier theoretical prescriptions and empirical observations lies perhaps in modeling labels simply as an instrument that delivers knowledge regarding production methods (and hence eliminates a market distortion on the consumption side), rather than systematically analyzing the *composition* of the label

¹ See Basu, Chau and Grote (2003, 2004 and 2006); Basu and Chau (1998; 2001); Mattoo and Singh (1997); Engel (2004); and Bureau, Marette and Schiavina (1998) for details on how voluntary and mandatory labels affect consumer perceptions, production choices and the volume of trade.

itself. Specifically, the issue of optimal label design, in so far as how consumers value the different attributes of a particular label is concerned, remains an open question.

In terms of consumer and producer receptiveness, labeling has provoked an international debate with major policy implications. While there are legitimate reasons for encouraging labeling as a means of improving the environment and protecting human rights, there are also equally important concerns - especially voiced from developing countries - regarding the fairness of these schemes in an international trade context. Indeed, impacts of labeling schemes are complex, depending on the design of and motivations behind such schemes. Especially, private companies or producer associations have recognized labeling to be a useful marketing instrument to improve their image or that of their products, and thus their competitiveness. In some cases, however, labeling might be also abused as a non-tariff trade barrier which aims at protecting the domestic market by making it more difficult for certain products to be imported into a country. In this context, research on the impact of labeling programs on production decisions in the export sector of developing countries, and the credibility of labeling programs in delivering what they promise, have received scant attention in the literature.

This volume showcases research that represents this new frontier of research on the economics of eco- and social labeling. In broad terms, there are two sets of research approaches covered in this volume. The first pertains to consumer and firm level analysis. These studies utilize (i) experimental design and contingent valuation methods to detect the link between label attributes and consumers' willingness, and (ii) household and firm level surveys to gauge the impact of labeling programs on labor supply, production and export decisions in developing countries. The second pertains to the link between labeling and macro-level policy and trade issues. These studies examine the (i) impact of labeling on the volume and terms of international trade between developed and developing countries, (ii) the reverse causal relationship going from openness and other macro-level economic indicators to the incentives to adopt labeling initiatives, and (iii) the policy debate concerning labeling in the international arena.

Debates surrounding the effectiveness of labeling inevitably start with the question as to whether consumers are indeed willing to pay a price premium for 'better' information conveyed through a label. Thus, the first part of the volume begins with two studies of eco-marketing in the US because of the presumption that high-income consumer markets would be a likely location where preferences exhibiting a willingness to pay for information indeed exist. Both these papers focus on two important concerns that can

overshadow the potential of labeling programs, namely: (i) whether consumers are indeed willing to pay extra for some of the attributes, and in turn, (ii) whether the labeling of such attributes will make a difference to consumption behavior.

Mario Teisl, Caroline Lundquist Noblet and Jonathan Rubin take a stab at the question of the prevalence of a positive willingness to pay for environmentally friendly passenger vehicles in the state of Maine in the US. The study is based on a random survey of registered vehicle owners in Maine in May 2004. Two experiments were carried out. The first is designed to ascertain the determinants of consumers' assessment of the eco-friendliness of a product. The second experiment is designed to examine consumers' purchase decision, depending on the importance that consumers place on eco-information. Thus, the study takes our understanding of the intricacies of eco-marketing beyond a simple "yes" or "no" to the issue of willingness to pay, and delve instead into a variety of possible consumer motivations behind the purchase of a product labeled as environmentally friendly. Interestingly, in terms of label design, Teisl, Noblet and Rubin find that more information *need not* be associated with higher eco-rating by consumers. These findings suggest that dual concerns surrounding labeling programs, (i) providing detailed accurate information and (ii) promoting eco-purchases, may not always go hand in hand.

Robert Hicks investigates consumers' preferences for 'Fair Trade' labeled coffee through an experimental survey of consumers in the US. Drawing from the contingent valuation literature to estimate consumers' willingness to pay for public goods, Hicks shows that when the benefits from buying labeled products are public in nature, then information on the existing stock of public goods leads to a higher willingness to pay compared to a label that only conveys product's approved production practices or methods. Using stated preference discrete choice methods, he empirically investigates the impact of information on consumer demand for labeled products and shows that people are willing to pay more as the level of public goods provision increases.

Turning to the opposite end of the supply chain, it has been frequently argued that labeling programs can provide appropriate price incentives for producers who choose to practice environmentally sound production methods or improve labor standards. Meanwhile, labeling may also have negative impacts, particularly for those producers who are faced with binding technological or cost constraints. The latter is particularly relevant for developing country producers, for whom the fruits of globalization may be hindered by green protectionism, and / or labor standard requirements that are inconsistent with current practices.

In this context, Sayan Chakrabarty and Cristina Carambas respectively study at the household level the impact of labeling programs. These are empirical studies based on household surveys, and constitute first-of-its kind to address directly the issue of labeling programs. Chakrabarty presents results of a survey in Nepal conducted to examine the effectiveness of non governmental organizations (NGOs), for example RUGMARK, in reducing the incidence of child labor in the carpet industry. Chakrabarty's data was obtained from interviews with 410 households of Kathmandu Valley in Nepal. Testing and estimating the effectiveness via multiple logistic regression shows that the probability of child labor decreases if the carpet industry has implemented a labeling program, decreases with an increase in adult (household) income, decreases if the head of the household is educated, increases with the age of the head of the household and increases in the presence of more children (aged 5-14) within the household.

Carambas studies the impact of labeling organic rice by drawing on a survey of 123 farm households in Thailand. She uses a cost-benefit analysis to show that although the rice yields of organic farmers are generally lower compared with conventional rice farmers, a positive price premium is nevertheless achieved through labeling so that the net revenues for eco-labeled rice farmers are relatively higher. Her results of the profit distribution analysis reveal that profits for eco-labeled rice both at the farm and export levels are generally higher than profits for conventionally produced, non-labeled rice. In addition, she detected some health benefits for farmers who adopted organic rice production techniques, and showed that Thai farmers are more likely to adopt environmentally friendly production techniques when information about labeling programs is made available to them.

Each of the aforementioned papers takes labeling programs as exogenously given, and looks at consumer and producer responses and consequences on the two sides of the supply chain, respectively. The next paper turns this question on its head, and asks instead: are there systematic reasons behind why countries adopt eco-labeling programs? In addition, do countries that adopt voluntary labeling programs behave as though it pays to do so, and perhaps more importantly, are countries strategically interdependent in their decision to adopt? Arnab Basu, Nancy Chau and Ulrike Grote study these questions based on a data set of national-level eco-labeling programs pertaining to the food industry in 66 developed and developing countries. This study is made up of two parts. It begins with a general equilibrium theoretical analysis of the decision to, or not to adopt. It then turns to an econometric survival analysis of the time to adopt eco-labeling programs. This study reopens the question of a trade and environ-

ment linkage, where labeling serves as the signal that links consumer preferences for eco-purchases and producer decisions. Their findings suggest that indeed, export orientation is associated with a higher likelihood to adopt eco-labeling programs. Interestingly, their findings concerning the time pattern of the adoption of an eco-labeling program are consistent with strategic complementarities, and a race to the top.

In a number of high profile trade disputes, labeling programs have been advocated in place of outright trade bans and import restrictions, precisely because it provides the missing informational link between final consumers and producers. These include the dolphin-tuna disputes, the case of the sale of tropical timber, and the presence of aflatoxins in food products. An important question that arises, therefore, is whether labeling programs is a cure-all policy option, particularly in trade disputes concerning hidden product attributes. The paper by David Orden and Everett Peterson concerns precisely this question, and singles out in particular an important case in point wherein feasibility of labeling is limited at best. The case in question concerns the longstanding import ban on Mexican avocados by the United States. The rationale for such a ban since its onset in 1914, has been the lack of control on host-specific avocado pests prevalent in Mexico but not in the United States, and the possibility of fruit-fly infestation of destination country orchards subsequent to export. The potential for labeling is limited here since the credibility of such labels, and consumer awareness regarding the potential of pest infestation, may both be in question.

Orden and Peterson examine a systems approach to risk management, employed by the USDA over the course of 1991 - 2005 which led to the sequential opening of the US market to Mexican avocado imports. The study also provides a partial equilibrium model, in which the consumer surplus gains and the producer surplus losses, upon introduction of Mexican avocado imports, are ascertained. Their analysis illustrates the complexities of the issues involved when trade expansion is entangled with technical standards and barriers. It also brings in new dimensions in the labeling debate, such as the role of the domestic industry in the policy decision-making process, and the importance of traceability of a product's country of origin. These are issues that await future research.

The second part of the volume focuses on the policy implications of product labeling and standards on the volume of imports for developed countries and on the export performance of developing countries.

Stéphan Marette offers an overview on the impact of labeling on agricultural trade volume by for different kinds of labels. Given the lack of precise data for evaluating the international trade impact due to labeling, he draws extensively on the given and scattered literature and elaborates

on French labels in general, and the wine, cheese and poultry markets in specific. Marette provides details on the market shares and price premia related to these labels and discusses the issue of compliance costs. He concludes that the emergence of new labels and markets may lead to competition shifts that impacts domestic markets and may reshape the nature of competition in world markets. Finally, Marette discusses the role of harmonization, mutual recognition and the concept of equivalence in the context of the existing proliferation of labels, and alludes to the importance of consumer education programs and the need for public regulations aimed at avoiding label proliferation.

Ahmed Ghoneim and Ulrike Grote analyze the impact of labor standards on the export performance by drawing on a survey of 83 firms in the textiles and ready-made garments industry in Egypt. According to their econometric results, several variables related to labor standards show a significant effect on the probability of a firm to export more than 50% of its output and exclusively to the West (namely EU and the US). Second, variables which ensure the enforcement of labor standards have a higher explanatory power for the probability of a firm to perform well in exporting than compliance and awareness variables. Third, firms are likely to self-enforce labor standards based on their expectation to improve their market access and the competitiveness of their export products. Thus, the driving forces leading to the implementation of higher labor standards at the firm level are of an economic nature rather than social. And finally, for those firms with a high volume of exports to Arab countries and for smaller firms (both exporting to the West or Arab countries), the effect of standards might lead to export diversification. Labels indicating that no child labor has been involved in the production process were not known to the entrepreneurs in Egypt. In general, the attitude towards labeling is divided, however, with the majority of enterprises applying negative attributes to labeling.

Spencer Henson and Steven Jaffee explore the impact that food safety standards have on the performance of developing countries and explore the responses of developing countries to the enhancement of these increasingly complex food safety standards. Opposed to the often voiced opinion that consider standards as barriers to trade for developing countries, Henson and Jaffee take a different approach by considering standards as catalysts for development in low and middle income countries. Indeed, standards reduce transaction costs, promote consumer confidence in food product safety, and may stimulate capacity building within the public sector. Thus, they may also create a new landscape that, in certain circumstances, can be a basis for the competitive repositioning and enhanced export performance of developing countries. To better understand the strategic options of

developing countries to meet these challenges, Henson and Jaffee draw on the concepts of 'exit', 'loyalty' and 'voice' developed by Hirschman. As a result, they point out that the most positive and potentially advantageous strategy combines 'voice', 'proactivity' and 'offensive' orientations. Consequently, the aim of capacity building should be seen as enhancing the scope to implement strategies that are 'offensive', 'proactive' and involve negotiation rather than on conventional problem-solving and coping strategies, often centered on the development of technical infrastructure.

Bettina Rudloff explores the scope and limitations for applying national food safety and labeling regimes in the framework of the WTO. Her analysis draws on the existing WTO database consisting of 373 food-related dispute cases of which 45 refer to the period before 1995 and 328 after 1995. Not only did the total number of cases increase over time, also more and more developing countries have been involved in food disputes as both defending and complaining parties. By analyzing the data, Rudloff found that the scope for implementing stricter national food safety and labeling regimes is very limited since it has to be based on the submission of a risk assessment. National flexibility exists only with respect to the choice of a specific non tariff barrier (NTB) like an import ban, or process controls in case of a dispute. However, she also points at the important fact that for many food safety issues, no standards have been developed so far and that the standard setting process of the Codex Alimentarius Commission is lengthy. In addition, voluntary and private standards as well as labels are gaining increasing relevance and these are not covered by WTO rules.

Although the papers presented in this volume constitute a step towards understanding some of the hitherto unexplored dimensions of eco- and social labeling, there remain a number of open areas of research on the topic. For instance, and to repeat a recurring theme on the advantage of labeling over interventions through eco- and social standards, one open issue is the ability of labels to remove the information distortion on the consumption side through a price premium. However, as Robert Hicks, Mario Teisl, Caroline Lundquist Noblet and Jonathan Rubin have pointed out in this volume, this willingness to pay differs according to how consumers value the stock of a public good, and on how consumers perceive different attributes attached to a label. This raises the issue of 'free-riding' inherent in the provision of labeled public goods. In other words, are there certain lower and upper thresholds of the public stock over which product labeling can legitimately induce a price-premium? If so, how do these thresholds vary across products and across countries for the same product?

Relatedly, the issue of international differences in attitudes towards the valuation of labeled products remains an open question. In particular, studies on the willingness to pay in developing countries are more or less absent in the literature. While it is obvious that many consumers in developing countries cannot afford to pay higher prices for eco-friendly products, there are nevertheless a number of labeled products that are being sold in developing countries. Little is known about the market potential of labeling in these consumer markets, and whether the labeling of products does make a difference in consumption behavior in developing countries.

Second, social or environmental attributes advertised through environmental and social labels are often multi-dimensional. Fair Trade Coffee is an interesting case in point. While some base the labeling of fair trade coffee on forest certification, others certify coffee as bird-friendly, organic, shade-grown or as organic. These different labeling schemes are also expected to have different effects on sustainability with respect to social, environmental and economic aspects. However, the implications of such a fine degree of product differentiation on the size of the market and consumers' willingness to pay for each type, again remains an open question.

Third, labeling criteria are increasingly accompanied by traceability requirements. Traceability introduces a system whereby it is possible to trace and track products across the entire supply chain. While proper labeling of the final product at the end of the food chain is aimed at assuring food safety to consumers through the information conveyed on the label, traceability systems generally go *beyond* this labeling information to include issues of accountability for every stage of the production process. The inclusion of traceability raises the question regarding the distribution of costs to various actors along the production chain, especially in developing countries, as compared to traditional, non-labeled supply chains.

Fourth, many labeling programs have been implemented for a very short period of time and the information on different schemes is fragmented and dispersed. However, as the years of implementation of labeling programs increase and more countries start to take stock of the labeling programs in certain sectors in their countries, better informed research can evolve. Improved data will allow for an examination of relevant questions like: what is the role of policy intervention (e.g. subsidies) to the production of labeled products on the volume and terms-of-trade? How do country-specific governance aspects of labeled products (monitoring intensity, claims of fraudulent labeling) influence consumers' willingness to pay when the country of origin is an additional attribute on product labels? Do regional trade arrangements influence the volume of trade in labeled products?

This field of research is closely linked to the second part of this volume related to policy implications of product labeling on the volume of imports for developed countries and on the export performance of developing countries. In this context, research on the question of whether and to what extent environmental and social labels may be abused as non-tariff barriers to trade is scant in the literature. The perspective of different developing countries is especially relevant in this context as private and voluntary standards, not covered by WTO rules, become increasingly more prevalent.

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