On Labels, Competition and Process Attributes

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The demand for products differentiated by process attributes, such as ‘green’ products, has increased. One of the specificities of these goods is that only the seller knows the production process used. Generally such asymmetric information leads to market failure, and market signals such as reputation or advertising are inefficient. In this context, governments may implement public labels in order to inform consumers on the attributes of products. In this paper, I discuss the effect of labels on markets, in particular on producers’ strategies. I conclude that depending on the market configurations labelling may increase competition.

Over the last few years, consumer demand for products differentiated by process attributes – for example, organic food, GM-free food, free-range poultry, high nutritional quality products, or ‘green’ products – has increased.1 Producers and retailers have responded to these changes by modifying and increasing the variety of goods supplied. Generally these goods come from a rather long supply chain and it is very difficult for consumers to obtain information on the production process of final products. Willingness to pay for these goods is therefore lower than it would be if consumers’ perceptions of their quality attributes were correct. This situation could potentially lead to market failure. High-quality products are not supplied since they are not sufficiently profitable, and only the lowest-quality product is sold (Akerlof 1970). ‘Green’ products are a good example of such goods. Consumers’ preferences for ‘green products’ are well established (see Cason & Gangadharan 2002). Consumers are willing to pay for environmentally friendly goods, for example dolphin-safe tuna or wood products from forest friendly sources. However, conversely to search goods2 and experience goods3, consumers cannot verify that the product is actually ‘green’, even after lengthy inspection or consumption. Hence, without public signals, the demand for these goods remains marginal.

The economic literature defines products differentiated by process-attributes as a version of credence goods. A typical example of a credence good is a repair service. Only the seller (the expert) knows the appropriate repairs and the level of service provided. The consumer is confronted with two potential forms of information asymmetry. First he does not know the type of repairs he needs, and second he may not be able to observe whether the suggested repair was carried out or not (Darby & Karny 1974, and Dulleck & Kerschbamer 2006). In the case of consumer goods with process-attributes, only the second form of information asymmetry is pertinent.

As noted above, the failure to disclose process attributes to consumers before and after purchasing leads to inefficient markets. In practice, one method for correcting this inefficiency is the use of public labelling. This paper focuses on well-founded public labels and their effects on markets. In the first part, I consider private signals such as reputation and advertising. I show that these signals are generally not effective in the case of products differentiated by process attributes. In the second part, I investigate the effects of public labelling of process attributes on competition and market structures.

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1 Generally products differentiated by process attributes are considered as high-quality products by consumers. The differentiation is said to be vertical.
2 For search goods, ie goods differentiated by search attributes, consumers can ascertain the product’s quality in a search process before to purchase (Nelson 1970). For example, freshness is a search attribute.
3 For experience goods, ie goods differentiated by experience attributes, consumers can discover the product’s quality only after purchase while using the product, or after consumption for food products (Nelson 1970). For example, taste is an experience attribute.
Well-Founded Public Labelling

Well-founded public labelling depends on the attributes signalled. In the case of goods differentiated by search attributes, public labelling is not likely to be instituted. Consumers may easily obtain information on goods, and generally this information is costless. It is easy, for instance, to have information about a food product’s freshness just by looking at the product. Therefore, there are no opportunities for producers to deceive consumers about the quality of their product. Note that a non-null search cost reduces consumers’ willingness to pay and may dissuade producers from providing a range of quality. As noted in the discussion below about experience goods, this can be solved through the market and does not require a public label.

With experience goods, consumers gain information after their purchase. They know the experience attributes of goods purchased or consumed. This information may lead to a ‘trust’ mechanism or a ‘reputation’ mechanism that mitigates information problems. Although these two mechanisms are both referred to as ‘reputation’ mechanisms in the economics literature, they are very different. To mark this difference I use the terminology proposed by Cabral (2005). The ‘trust’ mechanism is based on repetition and the possibility of ‘punishment’. It takes place when the supplier can change the product quality over time. The information gained by consumers after each purchase allows producers to develop trust in the quality of their products, and to subsequently derive rents from that trust. The case of Charal, a French brand of meat, is a good example of the ‘trust’ mechanism. Charal meat is sold vacuum-packed in opaque packaging. This technology allows for better preservation. As the product is not visible, freshness is clearly an experience attribute. Initially Charal sought to build consumers’ trust with special offers, so that they would come to know the product quality. Once that had been achieved, consumers were willing to pay a high price for Charal meat. This high price guaranteed Charal’s interest in producing the same quality of meat, to maintain consumers’ trust. If consumers perceive a lower product quality, they will stop purchasing, the trust will disappear.

The other mechanism that can solve information problems regarding experience attributes is the ‘reputation’ mechanism. It consists in updating consumers’ beliefs before they purchase the good. It takes place when the supplier cannot change the product quality over time. In this situation, producers use ‘signals’ such as advertising to inform consumers about the high quality of their products. The idea is for the producer of a high-quality product to spend a sufficient amount of money on advertising to be considered by consumers as a credible supplier of high quality. Low-quality producers would not be able to spend the same amount of money on advertising because their sales after the first purchases would only be at the level commensurate with a low-quality product. Here the function of advertising is just to inform consumers that a product is advertised (see Nelson 1970, 1974 and Milgrom & Roberts 1986). It is the level of money spent, not the message, that makes the advertising credible. As producers can convince consumers that experience goods are of high quality, the government is not likely to regulate the information.

For process-attributes, signalling is possible but requires a certification by a reputable agent such as a government or an independent expert (Caswell & Mojduszka 1996). ‘Trust’ and ‘reputation’ mechanisms are not likely to be applied to credence goods. The essence of these mechanisms is consumers’ knowledge of goods’ attributes after purchase or consumption, which cannot apply to credence goods. Without an opportunity for consumers to know the real

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4 The cost of a search process may be imputed to the time spent by the purchaser in the search process.
5 Consumers are confronted to a moral hazard problem for each purchase.
quality of products and to ‘punish’ swindlers, market self-regulation is unlikely. In this context, the government generally implements informational labels so that consumers can properly assess the attributes of products.

**Effects of Labelling on Producer Behaviour**

If we agree that public labelling enables producers to differentiate their products with process attributes, then a positive profit effect for producers is expected. Without labelling, the goods are undifferentiated and consumers buy the lowest-priced product. This creates a pressure on price, which is relieved when producers’ products are not quite identical. When products’ quality is known, high-quality producers may exploit customers with a high willingness to pay for quality, and charge high prices. These prices are sufficiently high to leave room for low-quality products (see Gabszewicz & Thisse 1979, and Shaked & Sutton 1982). Competition is relaxed; all firms gain from certification as long as it is not too costly.9 Recently, several economic studies have looked at environments where labelling of process attributes does not relax competition. We investigate these environments here.

In some markets, the production requires sunk costs.10 Entry to such markets is not free and the market price is such that only one or a few firms produce.11 The implementation of labels may allow ‘new’ producers to enter the market as suppliers of high-quality products (see Roe & Sheldon 2007). These producers sell their products at a sufficiently high price to cover sunk costs and make a positive profit. The number of producers on the market increases, which induces increased competition.

Bonroy and Constantatos (2008) consider the effects of labelling on competition when consumers have different beliefs about the trustworthiness of each producer. In many instances, consumers are aware of the existence of producers supplying goods of different qualities but have subjective beliefs concerning which producer sells which quality. These beliefs tend to be based on all available information, including press reports and word-of-mouth, and may vary from one consumer to another, due to differences in consumers’ ability to absorb and/or process information. In such an environment, producers may benefit from ‘niche markets’12, and prefer to cater for their respective niche market at a high price instead of vying for a large market share. By revealing which producers sell high-quality products to all consumers, a public label forces the low-quality producers to enter a price war, thus making competition stiffer. Competition may become so intense that even high-quality producers no longer benefit from labelling.

One aspect of goods differentiated by process attributes is that they come from a relatively long supply chain. Even if there are no information problems in upstream markets (downstream producers know the process or the input that they used), the implementation of a label has an impact on these markets. In particular, the label may reverse the ranking of products in the upstream part of the supply chain. Consider the case of products from Genetically Modified Organisms (GMOs). Monsanto, the leading US company in the development of GMOs, is selling its product to farmers and not to final consumers. Seed products on the upstream market are differentiated, and GM seeds are the most cost-saving seeds.13 The GMO labelling issue concerns only the downstream markets where the outputs from agricultural production are combined and processed before ending up on the consumer’s plate. Experimental studies have shown that consumers’ willingness to pay for GMOs significantly decreases once they are labelled (see Noussair et al. 2004 and Lusk et al. 2005). We can infer that, with labelling, farmers

9 Note that consumers with high willingness to pay are better off with labelling (they are ‘happy’ to consume higher quality). Conversely, consumers with lower willingness to pay for quality are worse off. Without a label, they will buy the same product, the low quality product, but at a lower price.

10 The sunk costs, such as the purchase of specific equipment, are relevant to an investment decision and not recoverable. Markets where production requires sunk costs are said to be non-perfectly contestable.

11 Other producers cannot enter the market and make a positive profit.

12 A producer’s ‘niche market’ refers here to the consumers that believe that this producer supplies a high-quality product.

13 GM seeds have a technical advantage for the farmer because they allow for better pest control (see Fulton & Giannakas 2004).
may consider GM seeds to be of low value due to the lower willingness of consumers to pay for GM products, despite technical advantages. Bonroy and Lemarié (2009) show that this reversal of farmers’ preferences drives the input supplier (in our example the GM seed) to decrease its price to the benefit to the low-quality farmers and low-income consumers. As expected, all actors in the supply chain of high-quality products benefit from labelling as well.

In some sectors, customers put pressure on producers to adopt a label. For example, an empirical study (Ibanez & Laye 2005) showed that 53 per cent of certified firms in the French wood supply chain were actually urged to adopt ecocertification14 by their customers. These customers, mainly retailers, used their market power to put pressure on producers who were unorganised and feared the boycotting of their wood. Adopting ecocertification can potentially increase retailers’ power over producers. When a producer decides to ecocertify his production in response to a customer’s demand, he must make specific investments in ecocertification. These investments reduce the producer’s opportunity to trade outside the ecocertified supply chain, which increases the risk of hold-up, that is having his surplus expropriated by an opportunistic trading partner.15 To avoid this risk, certified producers may decide to establish a collective organisation. This structure has the advantage of reinforcing the market power of producers and sharing the burden of sunk costs associated with the production or the introduction of labelled products.

Conclusion

Process attributes generate asymmetric information between producers, that have information about the production process used, and consumers who are not able to obtain this information even after purchase or consumption. Such asymmetric information can lead to market failure, and market signals are generally inefficient in avoiding it. In this context, a public informational label is justified – but its effects on industry participants may be very different, depending on the market configurations.

References


About the Author

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