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On the Development of an Ethical Demand Theory

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Lancaster (1966, p. 133) argues that “consumption is an activity in which goods, singly or in combination, are inputs and in which the output is a collection of characteristics.” This singular observation focused the attention of economists on the fundamental contribution of intrinsic characteristics of products to the utility consumers derived from them and challenged the long-held belief that utility emerged from the consumption of the products themselves. Lancaster’s seminal work has provided significant benefits to our thinking about products and production to maximize the intrinsic content in order to maximize utility and profits.

In recent years, a new consumer segment is emerging that we characterize as the ethical demand segment. These consumers stretch the foundations of the New Demand Theory because their utility from consumption emanates primarily from extrinsic characteristics of the products instead of their intrinsic characteristics or the products themselves. These consumers encompass those choosing products on the basis of their production technologies, the location of production activities, the relationship between manufacturers and their employees, procurement policies of suppliers, the distance the product has travelled and the environmental or ecological footprint left by the product. Ethical consumers pay premiums to consume products that meet their ethical sensibilities and are frequently willing to campaign to punish suppliers and producers they believe have violated their ethical sensibilities.

While there have been ethical consumers in the economy for a long time (recall the campaigners for the boycott of South African products during the final days of the apartheid regime (Booth (2003) and Nike after the child labor scandals in the early 1990s), their importance in the food industry has become significant enough to warrant a careful treatment of their demand decisions and determine their impact on firm strategy. Developing the Ethical

Demand Theory is the reason for this paper. However, that is only one half of the equation. The other half involves understanding how ethical consumers influence the transaction costs (Williamson, 1979) in the food industry through their demand for chain of custody information as well as documentation of verifiable production practices. Their emergence and growth as an important consumer segment has led to the development of new businesses that provide certification and verification of production, manufacturing and logistics processes. However, that the factors of interest are extrinsic to the products create significant agency issues that invariably get factored into consumption decision as the value of information about the product's history become important. Consider the case of Sainbury's DNA traceability for its traditional beef (Eurofood, 2001). How do ethical consumers *price* the information that they demand and what impact do these signals have on the decisions suppliers make? What role can policy makers play in this ethical market?

The paper addresses these questions drawing on the demand theory literature as well as the principal-agent literature (Akerlof, 1970). We develop the ethical demand theory by embedding the extrinsic dimension in Lancaster's intrinsic model and fusing the agency challenges of information asymmetry and moral hazard. We develop several optimum solutions for the ethical consumer within this market space. We trace the maximum profit conditions for suppliers under the different solutions.

The results show that the conditions underpinning demand decisions of ethical consumers provide interesting outcomes for demand analysis. They indicate that ethical variables can be priced the same way as intrinsic characteristics of products are priced by consumers. From a strategy perspective, the results show that shorter supply chains, i.e., the distance between the producer and the consumer, are more efficient because of the transaction costs that emerge in the

exchange, including verification and certification costs. This would suggest that there is a chance for small producers who have limited scale economy opportunities to pursue the ethical markets if they can be efficient in the management of its embedded transaction costs.

This research provides a new perspective on an emerging and increasing consumer segment. It provides the foundation for developing efficient consumer protection policies in this emerging marketplace and offers policymakers and decision-makers on the supply side of the market opportunities to identify, select and implement strategies that offer the best outcomes in shareholder value creation.

Lancaster's New Demand Theory

Lancaster's work accelerated a conversation that had its beginnings in the literature on hedonic quality measurements (Griliches, 1971). Thus, according to Triplett (1973), the characteristics presented by Lancaster (1966; 1971) are a long-hand construction of quality, a concept which has been widely discussed in the literature (Abbott, 1956).

For illustration of the New Demand Theory, let us consider two products, say milk, x_1 , and yoghurt, x_2 , in the spirit of Lancaster's presentation. Let us assume that a particular consumer perceives two important characteristics in these products—fat content, z_1 , and antioxidants, z_2 . We may assume that the consumption of these products is driven by the consumer's health consciousness about diet. Therefore, she values products with lower fat and higher antioxidant content. Suppose we frame it such that the milk has a comparative advantage of fat content, i.e., lower fat content, and the yoghurt has a comparative advantage of antioxidants (Figure 1). Now, let us formalize the consumer's problem. The consumer seeks to maximize her utility function defined as follows:

$$U = U(z_1, z_2) \quad \dots (1)$$

The characteristics are defined as a function of the products through the intrinsic consumption technology coefficient matrix, b_{ij} , presented as follows:

$$\begin{aligned} z_1 &= b_{11}x_1 + b_{12}x_2 \\ z_2 &= b_{21}x_1 + b_{22}x_2 \end{aligned} \quad \dots (2)$$

The intrinsic consumption technology coefficient matrix is subjective in time and dependent on the consumer's knowledge about the characteristics. Recent studies showing the benefits of consuming lower fat content products and high antioxidant products influence the consumption technology coefficients associated with the illustrative products under consideration here.

We finally assume that the consumer has a budget constraint which is the share of income, M , allocated to these products, defined as follows:

$$p_1x_1 + p_2x_2 \leq M \quad \dots (3)$$

We can solve for x in terms of z from equation (2) to get the following:

$$\begin{aligned} x_1 &= \frac{b_{22}z_1 - b_{12}z_2}{Y} \\ x_2 &= \frac{b_{11}z_2 - b_{21}z_1}{Y} \end{aligned} \quad \dots (4)$$

where $Y = b_{11}b_{22} - b_{12}b_{21}$

Substituting Equation (4) into Equation (3) yields the ratio of prices in terms of the consumption technology coefficients and the characteristics, which is represented as follows:

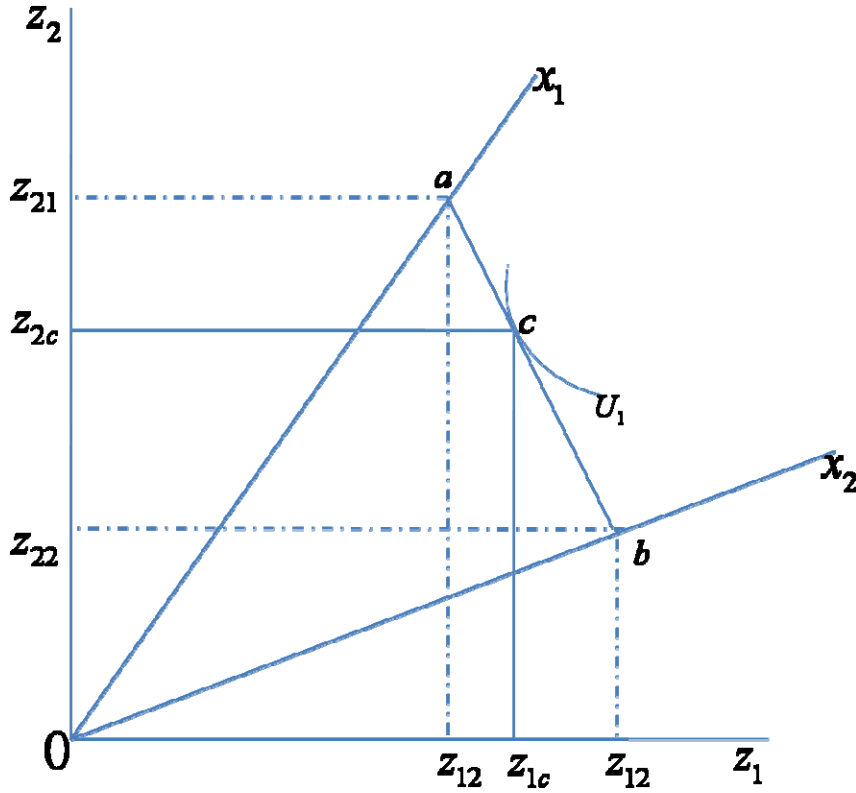
$$M = p_1 \left[\frac{b_{22}z_1 - b_{12}z_2}{Y} \right] + p_2 \left[\frac{b_{11}z_2 - b_{21}z_1}{Y} \right] \quad \dots (5)$$

which translates to:

$$\frac{p_1}{p_2} = \frac{-b_{21}z_1 + b_{11}z_2}{b_{22}z_1 - b_{12}z_2} \quad \dots (6)$$

It is important to recognize that the budget constraint in the New Demand Theory does not have the same interpretation as the one found in traditional consumer theory. Its interpretation here is an efficiency frontier describing the relative prices of characteristics derived from the different products based on relative product prices (Equation 6), defined by the line **ab** in Figure 1. Its slope defines the substitution between characteristics given the products under consideration. Optimal characteristics' combination for indifference may occur at any of the vertexes, **a** or **b**, implying that the value of the characteristics is derived from only one product, or anywhere along the efficiency frontier, say at **c**. If utility is maximized at **c**, then the corresponding levels of characteristics consumed are z_{1c} and z_{2c} .

Figure 1: Illustration of the New Demand Theory Solution



Changes in p_i will alter the implicit prices of the characteristics, thereby changing the shape of the efficiency frontier. Similarly, changes in b_{ij} will alter the angle of the product curve, thereby altering the shape of the efficiency frontier.

The foregoing illustrates how Lancaster's consumer focuses attention on maximizing her utility by the consumption of the intrinsic characteristics of the product given the intrinsic consumption technology coefficients and prevailing prices. The ethical consumer is not very different from Lancaster's consumer except that in addition to deriving utility from the intrinsic components of the products consumer, she also derives utility from the products' extrinsic characteristics of the product. Indeed, we argue that she takes the intrinsic characteristics as a given and proceed to maximize utility almost entirely on the extrinsic characteristics. We may

think of this, in terms of Figure 1, as introducing a third axis that captures the products' extrinsic characteristics based on extrinsic consumption coefficients.

Assessing the Ethical Consumer

Drawing on Maslow (1954) and his model of hierarchy of needs, we develop an appreciation of the behavioral shifts that motivate the evolution of consumers towards ethical consumption. Maslow's model has five factors or levels: physiological needs; safety needs; love and belonging; esteem; and self actualization. Physiological needs include hunger, thirst, and sensory needs such as taste, smell, and touch. When these needs are unmet, people will use all their psychic energy to meet them, leaving little or no energy for anything else. Safety needs involve living in a stable, predictable environment that is free of anxiety. Consumers will make consumption decisions that enhance their sense of safety—purchasing housing in locations they consider safe, installing security technologies, etc. In the end, safety is a sense of knowing one's physical being and property are secure from unwarranted violation. Belongingness and love needs are rooted in fear of isolation and the need for human contact and the need to belong to groups—families, friends, and organizations. This need explains why solitary confinement can be punishment for many people. There is a belief that belongingness and love, like survival and safety, are inherent to our needs as humans.

Esteem needs concern people's desire for a stable and high evaluation of themselves by others. It involves the need to feel competent, respected and superior or accepted as a peer in groups one considers are her peer group. Esteem needs, although already in children, become fully active after survival, safety and belongingness needs have been met, according to Maslow. From a consumption perspective, esteem involves the indulgence in conspicuous consumption—

the purchasing of goods that *announce* achievements and accomplishments and separates the consumer from others. At this level in the hierarchy, consumption is about showing that one deserves respect and/or acceptance by society.

Self-actualization needs are, perhaps, the most complex of the five. They may be seen as “the desire to become more and more what one is, to become everything that one is capable of becoming” (Maslow, 1954, p. 92). They can only be reached after fulfilling the first four needs in the hierarchy. According to Csikszentmihalyi (2000), self-actualization presents the most enigmatic predictions vis-à-vis consumer behavior. For example, having exploded in the esteem stage, showing off one’s accomplishments and success, self-actualization may cause frugality and a search for personal growth. The focus of consumption at the self-actualization stage is on becoming more, reaching the limit of one potential as a person. This focus drives attention from the self to the self in its space. Recognizing the role of economic incentives in behavior, people at the self-actualization stage will invariably make consumption decisions to educate or to elicit particular behaviors.

Let us illustrate the ethical consumption decision following the New Demand Theory format. Consider a two-product, two-characteristic and two extrinsic characteristics, say organic production and small farms. The consumer may place ethical value on products coming from small farms because of her inherent disapproval of corporate farming and its effects on maintaining a community’s way of life because of the competitive pressures it exerts on small farmers. The consumer may also believe that small producers pollute less and are therefore better stewards of the environment. Although the consumer may recognize that there are no nutritional and intrinsic differences between an organic product and its conventional counterpart, she may still choose to consume the organic product because of its extrinsic characteristic of

being produced with pesticides and inorganic fertilizers because of their effects on non-target species and surface water and air pollution.

The ethical consumer seeks to use her choice preferences to influence society into making decisions in line with her ethical orientation. Therefore, the ethical consumer pays a premium for these extrinsic characteristics and in so doing attempts to alter the production function of suppliers. Thus unlike a consumer in search of self-esteem, the ethical consumer's directs her consumption decisions to values that are broader and tend to have more benevolent effects on society. What we see here is that, by definition, the ethical consumer has more wealth than the traditional consumer, or chooses to use her wealth to achieve ethical outcomes that satisfy her in intangible ways. This is akin to Smith's (2002, p. 11) observation that:

How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it. Of this kind is pity or compassion, the emotion which we feel for the misery of others, when we either see it, or are made to conceive it in a very lively manner.

The expression of these natural principles in ways that seek not just to derive pleasure but also to instruct in doing what is good for society, according to Maslow, results from having achieved the four lower levels and migrated to the self-actualization level in the hierarchy of needs.

Let us, therefore, suppose that our milk and yoghurt products have the same low fat and antioxidant intrinsic characteristics with the same intrinsic consumption technology coefficients. Let us superimpose on this the extrinsic characteristics small farm product, y_1 and organic production technology, y_2 . The consumer's utility is defined as follows:

$$U_e = U_e(y_1, y_2) \quad \dots(7)$$

These extrinsic characteristics are defined as a function of the products, x , and their

intrinsic characteristics:

$$\begin{aligned} y_1 &= F(x_1, x_2, z_1, z_2) \\ y_2 &= G(x_1, x_2, z_1, z_2) \end{aligned} \dots (8)$$

The consumer is constrained by a budget allocation to the products. However, the ethical consumer has a higher allocation to these ethical products than the traditional consumer.

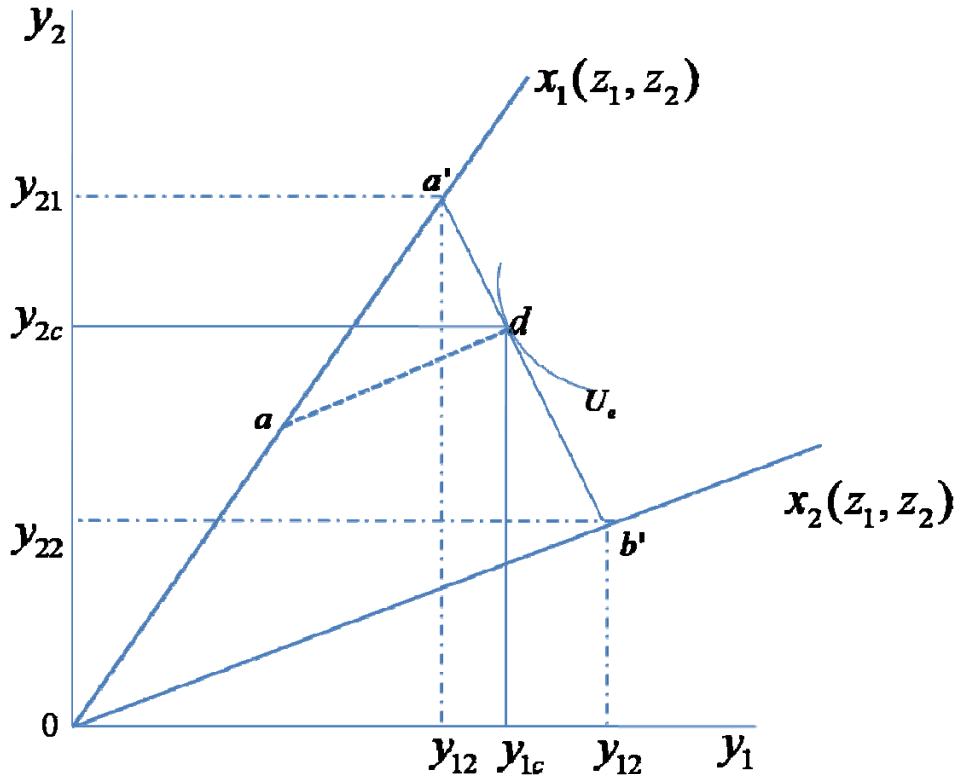
Therefore:

$$p_{e1}x_1 + p_{e2}x_2 \leq M_e < M \dots (9)$$

and $p_{ei} > p_i$ from Equation (3).

Going through the similar transformations, we are able to develop Figure 2 to illustrate the ethical characteristic space for the consumer. In the figure, we recognize the fact that the selection of the ethical characteristics is based on both the quantity of x and their intrinsic characteristics.

Figure 2: Illustration of the Ethical Consumer Solution



The utility maximization combination over y_1 and y_2 may occur at the vertexes or where consumption is fully allocated to the x_1 or x_2 respectively, or somewhere in the extrinsic characteristic efficiency frontier, such as point d . If utility is maximized at d , then we can, after Auld (1974), determine the associated quantities of x_1 and x_2 by drawing a line parallel to x_2 through d . The quantity of x_1 consumed is y_{1c} and the quantity of x_2 consumed is y_{2c} .

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