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Source: *Review of Agricultural Economics*, Autumn - Winter, 2002, Vol. 24, No. 2 (Autumn - Winter, 2002), pp. 410-427

Published by: Oxford University Press on behalf of Agricultural & Applied Economics Association

Stable URL: <https://www.jstor.org/stable/1349769>

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Agricultural Industrialization: A Metaeconomics Look at the Metaphors by Which We Live

Gary D. Lynne

Agriculture continues to be driven by rapid technological change on the base of a particular kind of value system. This path produces an abundance and variety of high-quality food and success for many. It also produces externalities, not the least of which is the sense of gloom among youth who might otherwise pursue food system careers. Perhaps we need to be carefully examining the values implicit within the invisible hand, subjecting it to scientific scrutiny. One alternative is a kind of metaeconomics that focuses on moral inquiry, recognizing both a self-interest and a joint others-interest in the outcomes.

This paper is offered in the methodological spirit of what has come to be called postmodernism.¹ It offers to engage the reader in an open dialogue about the underlying value premises in economic analysis, with application to the question of whether agricultural industrialization is actually inevitable as most believe (e.g., Urban). To accomplish this, a variant on standard economic theory is introduced to help in thinking about values and how to make this moral dimension a technical feature of economics by including it directly in the economic calculus.

The other aspect of this paper is more indirect, and pertains to the use of metaphors in economics. As an anonymous reviewer noted, we need to carefully distinguish the use of metaphors for analyzing reality from those that have the power to change reality. It is also necessary to be cognizant of the role of “dead” economic metaphors (see Lagueux, pp. 8–13), that is, things once metaphorical that now form the technical base of economic theory. The circulation of money, for example, was once a living metaphor likened to circulation of blood in the body and of water in a system of pipes with valves. Now the circulation of money can be described in technical terms.

The focus herein is on metaphors that have not yet made their way into the technical aspects of the theory, in particular, “the invisible hand,” but also ideas

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like the “discipline of the market,” and “safety nets” for the cases where discipline did not pay. Intriguingly, it is this kind of economic metaphor that when questioned, “shocks the reader and contributes to the creation of new meaning” (Lagueux, p. 11). A “shock” means something having an effect like the human capital metaphor that Gary Becker introduced which visualizes our very own children as durable goods. This “metaphor never really died as a metaphor because its emotional content remains shocking to most people . . .” (Lagueux, p. 17). It also has yet to make its way into economic theory as a technical aspect because it concerns the empathic part of our brains where the emotions emerge. Yet, after the emotion subsides, it does help one think in ways not possible before the shock. Some may be shocked by my contention that we need to inquire into the moral dimension of industrialization, and that the essence of the contemporary invisible hand metaphor involves an invisible set of values best described as a “strict father morality system.” While the goal is not to shock the reader, it is possible that a shock could stir new meaning and understanding of industrialization. It may even change the economic models we use. In fact, the metaeconomics model proposed here seems to show one path to including the moral dimension in a new kind of economics, which is also the goal in Etzioni (1988), and now seems quite possible to achieve. Ironically, by including moral inquiry, a metaeconomics approach also holds the potential to be more objective than standard economics because the hidden is now revealed; the invisible is now visible and opened to scientific inquiry.

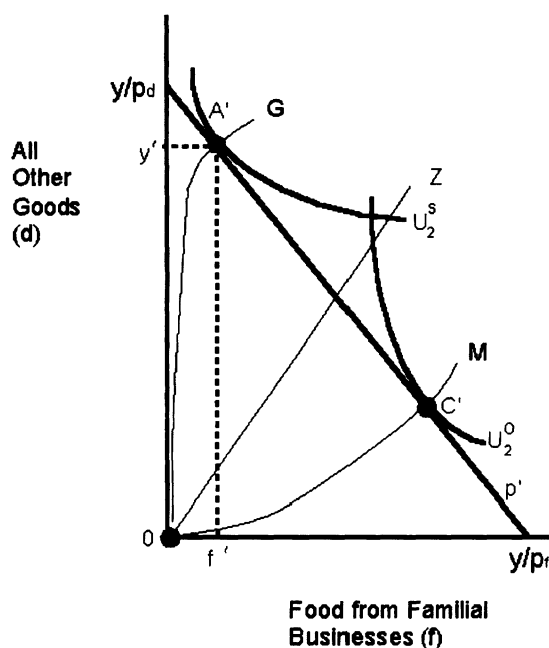
The Model

It would be helpful to have a readily useable, technical economic model to examine the moral dimension of the industrialization question. Fortunately, the seminal work by Frisch on interdependent and limitative processes; by Etzioni (1986, 1988) on multiple utility; and the more recent findings in neuroscience (brain) research highlighted by Cory (1999, 2000), converge to provide an intriguing and promising foundation.²

Such a model also would not be without a foundation in science. In fact, the notion of explicitly modeling the role of values follows naturally from recent understanding of the evolutionary biology of the human brain. Based on his assessment of decades of scientific research on the human brain, Cory (1999, 2000) persuades us that humans have evolved with egoistic and empathic ranges that are more or less in constant tension. This tension is manifested in the natural conflict between the pursuit of private and public interests, not only within individuals but also within and across economies and societies.

We modeled this phenomenon within the new metaeconomics framework by defining the individual self-interest arising within the egoistic range of the brain and the others-interest within the empathic range. We have represented this as two fields of utility rather than one, and depicted the two ranges in a set of overlapping indifference curves (drawing on Frisch, especially pp. 269–281³). Figure 1 shows the indifference between all-other-goods (*d*) and food (*f*) produced in a familial operation. It suggests that resolution of this tension may be accomplished through (1) maximizing utility associated with pursuing the self-interest

Figure 1. Joint self-interest (S) and others-interest (O) indifference curves for food (f) from familial businesses and all other goods (d)



along egoistic path OG , or (2) maximizing the utility associated with pursuing the others-interests (and, note, this is still an interest of the individual consumer modeled here) along empathic path OM . We posit, however, that the tension and conflict is most likely resolved by (3) finding the symbiotic balancing point of joint, albeit incommensurable utility in a satisficing approach to consumption and life generally along path OZ . On this path, the individual is maximizing neither self-interest utility nor others-interest utility. The latter is generally handled in economics as though emanating from the metaphorical invisible hand. These two kinds of utility, the pleasure utility U^S and the moral utility U^O characterized by Etzioni (1986) are incommensurable, like wool and mutton in a sheep, arising jointly, but wool is not mutton and mutton is not wool.

The two utility curves intersect at every point in Figure 1, with each curve representing a substantively different kind of (incommensurable) outcome. This is illustrated at the point slightly above the OZ path where U_2^S intersects with U_2^O . Also, an others-interest U^O curve passes through point A' and a U^S indifference curve passes through point C' (not illustrated). These crossover points have the significance that every point in the joint utility space has both utilities represented; every mix of goods yields both the pleasure utility U^S and the moral utility U^O .

This person pursues two incommensurable utilities and while on the distinct path OZ , often goes to the station of the impartial spectator that Smith (1790) described. After choosing to act with sympathy that arises from an empathic

projection, the person emerges in a special state of mind. As Khalil (1990, p. 266) says it,

[E]goistic theorists ... [assume] that humans can never rise above their [self] interest—humanist theorists [assume] that humans are essentially martyrs. Smith takes a different view ... [that the individual] could examine the competing claims ... impartially ... [that the result] is not a mixture of the two [but rather] a distinct entity.

The state of being a distinct entity, or a truly wealthy individual as Smith saw it, occurs somewhere on 0Z where we would find someone who has conditioned the self-interest in the pleasure dimension with the empathic others-interest, and conditioned the others-interest in the moral dimension with the egoistic self-interest. Perhaps it is with many such distinct entities—farmers/ranchers, butchers, bakers (agribusiness), and consumers—that we enter a path leading to true wealth in the food channel and the nation.

The paper now turns to delineating two alternative kinds of morality systems (after Lakoff), each resulting in substantively different kinds of invisible hand metaphors. We contend that the metaphor by which we live influences how we approach the industrialization question, perhaps even influencing the very language we use to characterize the problem(s).

Strict Father Morality System: Industrialization Story 1

We start with the universal progress system and the strict father morality system underlying the model of the household. These two perspectives seemingly have played substantive roles in the continuing division and specialization of labor and capital. As Castle (1998b, p. 7) points out, industrialization is not new, and has been “a gradual but relentless process ... under way for centuries.” Welsh (pp. 4–5) suggests we have been moving forward by replacing labor with capital, using managerial and cost accounting, decreasing the number of owners/managers, increasing the number of wage (often minimum) labor jobs, specializing and making farm tasks routine, expanding use of chemical fertilizers and pesticides, increasing contract production, increasing the concentration in ownership within the market channel, and moving to more ownership of land by the integrators. All of this is consistent with the strict father morality system.

We can represent the essence of this morality system in one standard family of self-interest, U^s , indifference curves (figure 1). The general model considers the vertical axis representing a numeraire, all-other-goods, including food provided through the industrialized part of the food system, with a price of 1. The (negative of) food price, p , is the slope of the budget line (y/p_d , y/p_f). The self-interest pursuing consumer buys f' at p' and has y' income remaining to spend on all-other-goods. The moral dimension is implicitly embedded in the self-interest along 0G, only after being mediated through the self-interest. Recall that an others-interest U^o curve passes through every point on 0G. It is in this sense that economic analysis comes to be characterized as not necessarily immoral, but amoral.⁴

As Khalil (1998, p. 614) argues, amorality may be the most fundamental problem with the economic model and that perhaps we need to explicitly model the moral sentiments, too. If the model does not include moral inquiry, then no such inquiry (and analysis) usually occurs in the regular practice of economic science. In other

words, economists normally focus attention on self (egoistic)-interest utility U^S in food produced in familial businesses, f , and ignore the others (empathic)-interest utility U^O .

The farm/ranch and other agribusiness food system familial businesses throughout the market channel are conceptualized the same way. The individual at the head of the family or business has responsibility for supporting, protecting, and representing the self-interest, U^S , indifference curves for the family and the familial business. This individual makes the decisions regarding which tractor and other farm equipment to buy, decisions that are actually a complex mixture of production and consumption considerations. The family or business head may choose to buy John Deere (green) or old-International (red) tractors, for example, but not red Co-op tractors (an actual brand name, a tractor manufactured for and sold by farm cooperatives at one time in the Northern High Plains region). He/she also decides to buy fertilizer, seed, and feed, and sell the products to other family-run agribusiness operations and not to the co-ops. All the relationships in the channel are autonomous and independent, using the markets. Each will be rewarded through appropriate responses to incentives.

There is no need for establishing relationships through alliances and contracts, vertically integrating or otherwise coordinating within the market channel. The market includes large numbers of independent individuals handling the allocation problem impersonally. Such matters as food safety are largely a nonissue because individuals providing low quality or tainted food will be appropriately disciplined by the market. Environment is also not an issue in that individuals are, hierarchically, in control over all creatures in the biotic community. As Boehlje (p. 6) noted, under the old agricultural paradigm (and I am arguing that this value system is quite widespread in the old paradigm), the spot markets, along with some public provision of information, provide all the coordination needed.

At the farm level, each will be rightfully disciplined by the market if too much grain or livestock is produced. Producers cannot depend upon government price support programs; subsidized crop and revenue insurance programs; government-developed foreign markets; and government soil, water, and other natural resource conservation or reserve programs. Such support would weaken individuals for participating in the markets. Government leaders are expected to not meddle or otherwise interfere in the operation of this kind of invisible hand. It follows that in this type of morality system, it is best to learn a special kind of self-interest seeking, "opportunism—to include the use of guile in pursuit of one's own interests" (Williamson, p. 81). Individuals need to learn to sink or swim, which is helped by guile. Each individual is also presumed to have sufficient skills and knowledge, which is also driven by the discipline of the market.

This kind of invisible hand also can guide the setting of university research priorities toward segregated early weaning and other sophisticated technologies in hog production, wherein generally hoop barn research is not a priority.⁵ Control over lower order animals is valued, which hoop barns do not provide in sufficient quantity. Segregated early weaning with substantive economies of scale represents a progressive technology leading to mass production. Bigness serves as the salient indicator of economic progress, although the outcomes are sometimes measured in "hard tomatoes and hard times" for farmers. It was this notion

of progress and this morality system within the land grant system that Hightower and colleagues railed against.

Intriguingly, this kind of invisible hand presumes zero social costs. Externalities do not exist due to internalization within the egoistic self-interest of each individual, that is, there is only one set of indifference curves. Individuals know what is best and do not need to pay attention outside their own self-interest to polluted environments; excessive industrial concentration; decline of rural communities; food produced in ways consumers do not want it produced; and the gloom (Prosch) among the youth. Social costs are a myth (Cheung). In this version of the invisible hand, the price of progress does not need to be reimbursed by the individuals who have practiced discipline in the markets (Nelson, 1997).

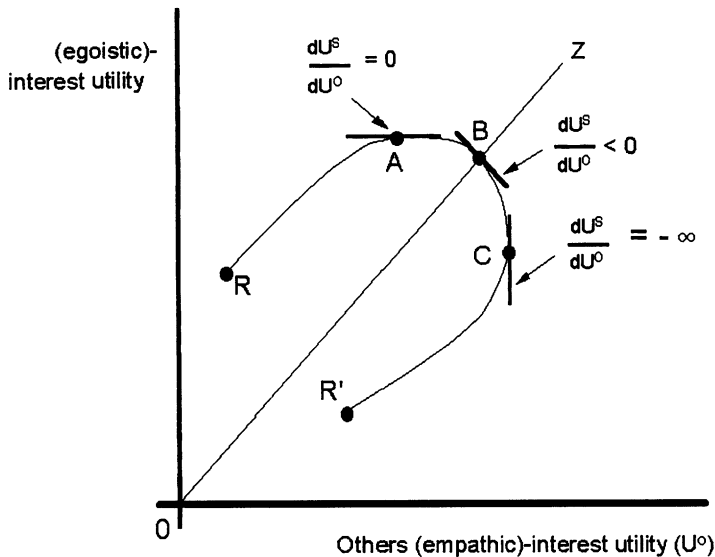
Nurturant Parent Morality System: Industrialization Story 2

We start this story in a similar manner with the standard family of indifference curves, U^S , plus we explicitly acknowledge the others-interest indifference curves, U^O . The two sets still represent a consumer and the family or a familial business. In contrast to the previous metaphor, however, we define an others-interest inherently in tension and conflict with the self-interest due to expressing empathy with family members, with others in the food channel, and with the community. This tension leads to human stress over “doing what one wants to do” and “doing what one ought to do,” two things that are joint and nonseparable (i.e., the indifference curves overlay one another, and are nonseparable, like the isoquants for wool and mutton as joint products in sheep production). This model can also include empathy for other living creatures in the biotic community. Universal economic progress is now conditioned by empathy. This empathy could carry over into the markets that now become more personal, negotiated, and perhaps more closed.

The individual in this family or familial business will avoid maximizing own (egoistic) self-interest utility at point A' or own (empathic) others-interest utility at C' and instead resolve the tension and conflict by seeking a satisfactory point within the region delineated by OG and OM , somewhere within this jointly efficient and moral zone.⁶ Somewhere in this zone, peace of mind is at least temporarily achieved by meeting commitments. As Sen (1977, p. 318) notes, we pay attention to the claims of others by our commitments. We posit that both sets of curves are *internal to an individual*. Where we eventually choose to be in the two incommensurable fields of utility reflects commitments to others and the norms they represent. This is not interdependent utility in the sense of some other person's utility entering as an argument in this individual's utility function, but it is absolutely interdependent utility in the sense of both arising simultaneously at every point, as was highlighted in introducing figure 1.

So, it may well be rational, and thus within the economic calculus, to also do some calculating within the moral dimension. Indeed, we would see that with enough individuals paying attention to the moral dimension associated with favoring familial business, the price of food f will be driven higher,⁷ toward p . Doing the calculus in both the egoistic and empathic dimensions results in choosing the combination of all-other-goods and familial produced food at point B in figure 2. This substantively higher food price p could result in considerable sacrifice with only y'' now available for all-other-goods, and an overall lower standard

Figure 3. Ego-empathy frontier for the self-interest utility (U^S) and others-interest utility (U^O)



from R to A , both utilities increase. We maximize the U^S at point A and achieve some lower level of U^O . As we move from R' to C , again, both utilities increase. We maximize the U^O at point C and achieve some lower level of U^S . At any point on the ego-empathy frontier of figure 3, an individual experiences both kinds of utility associated with some point on RR' in figure 2. At point B , we achieve the preferred balance in the two utilities, a satisfactory and symbiotic balance. Intriguingly, in standard economic modeling we presume that only point A is of any relevance, and, in fact, may actually encourage counterproductive, extremely greedy and selfish behaviors at point R , perhaps the point where Scrooge found himself during the early hours of Christmas morning. Scrooge, however, learned of the benefits of some empathy as he maximized his self-interest at point A (charitably, perhaps he moved somewhat toward point C , but not very far). As noted, U^O is not zero even when we maximize our self-interest. In fact, our self-interest is served by acting with empathy, as we can now see at point A (see Lynne for an elaboration on the Scrooge story, and, also for an analysis of a Mother Theresa who needs to avoid the other extreme at R' : We must also pursue our self-interest lest we not survive). We take action within the rational zone of moral and efficient combinations along AC in figure 2, rather than a point of strict economic and amoral efficiency at A or A' . We move along some path OZ as true wealth increases.

This is to say, metaeconomics sees a kind of fusion of the self: others-interest at work within these zones and the paths OZ arising from a dynamic interaction within the industrialization process. Adam Smith, too, "held an interactionist theory of human conduct" (Khalil, 1990, p. 257). Individuals practice a sympathetic interaction, in the sense of considering each other's values, which ultimately

influences the path. It is as if each individual is operating an internal impartial spectator of his own conduct, who is acting on principle: "The principle by which we naturally either approve or disapprove of our own conduct, seems altogether the same with that by which we exercise the like judgments concerning the conduct of other people" (Smith, *The Theory of Moral Sentiments*, III.1.2, cited in Khalil, 1990, p. 263).

We also now have each member of this familial agribusiness deriving deeper meaning from the process, with the firm seeing itself as embedded within both the human community (including subsets of the food market channel) and the broader natural environment. And, while embeddedness is an idea not included in most economic metaphors, it has made its way into new ways of thinking within science and the new economic sociology (Granovetter, especially pp. 483–87). The idea of embeddedness of the economic and social system within the natural system is a common theme in the new ecological economics (see, e.g., Daly). The result may not only be deeper meaning for food system workers, but also food safety for consumers, while providing safety for wildlife potentially affected by the use of pesticides. Higher food prices would reflect these shared values and moral commitments.

By explicitly modeling the moral dimension, or the moral sentiments as Adam Smith (1790) referred to it, this nurturant parent-based model suggests it is economically rational that individuals be taught to work at developing positive relationships with others. As Boehlje (p. 11) notes, "human and personal skills" are fundamental in the new agricultural paradigm. Such a model might suggest effort is needed to reduce the relationship risks, which could now overwhelm the price risks, for example, with tractor and input dealers, the alliances with food processors, and perhaps the social contract with consumers to provide safe food in a safe environment. Such an individual may well stay loyal to the cooperative. In times past, for example, they may have bought the Co-op tractor, and in more contemporary times, they may work within the new limited stock co-op. The higher costs and lower prices from the cooperative might be viewed as worth the higher familial (others-interest) benefits. Keeping relationships viable is a goal even if overall profit must be sacrificed, because "without a we there is no me." The other part of this is: "the we needs a me to be," which is to say the pursuit of self-interest is fundamental to the individual and to the economy. Indeed, this model suggests that the "we" (others)-interest and the self-interest, the empathy and the ego, need joint expression for market channel success. Also, there is no inherent reason why a set of others-interest curves similar to that found in a co-operative could not evolve in a more standard kind of corporate structure. In fact, we often hear of "corporate culture" that we can now see is something perceived by the individual within that corporation in a set of others-interest curves.

The metaeconomics approach also suggests that consumers (and farmers as consumers), while still ultimately sovereign, may legitimately express the others-interest in other forums, yielding new laws, administrative rules, and court interpretations. These forums may well reveal a new moral dimension underlying the expectations of markets on such diverse matters as how animals are treated before slaughter, how the environment is managed, and how risks are shared within the market channel. As a result, some safety net protection of growers/farmers/ranchers and other agribusiness firms by consumers could also now be

viewed as normal, legitimate, and efficient. For example, government support is provided when the market suffers a substantial drop due to an Asian financial crisis or when farmers experience a flood or severe drought. Safety nets are now an economically rational idea.

This kind of an approach could also help in teaching that the fundamental choice to be a part of agribusiness and the food system is really about choosing a value system, and that the young have to choose. As Saxowsky and Duncan (pp. 24, 26–29) outline, choices include becoming (1) a large, specialized commodity producer (which is favored by the universal economic progress value system); (2) part of a vertically coordinated operation, or perhaps contracting with same (also favored by said value system); (3) a small, specialized niche producer of differentiated products; (4) a part time farmer/rancher with substantive off-farm income; (5) part of an alliance by networking with other farmers/ranchers, perhaps forming a limited stock cooperative; and (6) a part of the nonfood sector.

Networking with other farmers, for example, may involve a nurturing farmer helping a beginning farmer by selling a farm at a reduced price, which is a common occurrence in real farmland markets (see, e.g., Siles et al.). The two interests are interdependent and likely to be joint, nonseparable. Ultimately, the youth perhaps will have to examine their values, consciously, and help forge a new kind of now more visible hand to guide agriculture. Also, success of the youth will be determined by the extent to which they can build networks and trust with a sufficient number of consumers having the same value system, as the analysis of figure 2 suggests.

Due to explicitly addressing values, we may now also move to providing more opportunities “to be” and “to do” (the positive freedoms, see Sen, 1987). The invisible hand that only ensures the fittest in the spirit of the negative freedoms/standard economic constraints, could legitimately now on efficiency grounds be *augmented* with the positive freedoms and the visible, nurturing hand, represented in the opportunities. Also, in this approach, we could analyze the effects of value systems wherein people are not being viewed as above plants and animals in a hierarchical way, but, rather, evolving in consort, with self- and others-interests viewed on par with one another. The ego and the empathy are on par, simultaneously autonomous, yet interdependent and symbiotic, and not hierarchical (Cory 1999, 2000). As Norgaard argues, technological knowledge, values and the economy/environment coevolve. Metaeconomics points to the need for a coevolutionary look at how to organize a community-based food system, while calling for better integration of the economy (i.e., the fusion of ego and empathy) in both human and natural communities.

It is reasonable to expect that a metaeconomic-based analysis would find that an others-interest is at work, causing the consumer to emerge with a willingness to pay more at point *B* if it also supports a familial operation. This may make it easier for university researchers to conduct research on alternative technologies that give more opportunities to a broader base of possible users. In the hog example, this might include research on low-resource hoop barns, in addition to segregated early weaning facilities. Generally, we might now start to see, and thus organize scientific economic research to find ways to fuse the dichotomies between the old versus new agricultural paradigm as characterized by Boehlje:

hard assets versus soft (people) assets driving competitive advantage, finance and assets versus information as the source of control, impersonal and open versus personal and closed markets, impersonal sourcing and selling versus relationship sourcing and selling, price risk versus relationship risk, independence versus interdependence, technical skills versus communication skills necessary for success, tradition and remembering versus new ideas and forgetting. In a nutshell, metaeconomics focuses our attention on the new path 0Z through these fields of conflict and tension.

By so doing, metaeconomics points to the need for more open dialogue over actions of the International Monetary Fund and the World Trade Organization, including considering how globalization will also result in exporting and importing what kind of values and when. A values-elaborated metaeconomics suggests we will know the best path of agricultural industrialization only after serious megalogues, as Etzioni (1996, p. 106) refers to them, where a variety of individuals in the food channel are engaging in similar dialogues about the values evolving along the industrialization path. Perhaps land grant universities need to put more energy into helping facilitate the same. We also have 200+-year-old advice from Adam Smith on what needs to go on within this megalogue. We truly need sympathetic, empathic consideration of the values held by others and ourselves. We perhaps need both of Smith's books to jointly form the foundation of postmodernist metaeconomics, at once integrating Smith (1789) by addressing ego and Smith (1790) by addressing empathy as we jointly seek a distinct, scientific state for economics.

Perhaps most importantly, with convergence of values and the evolution of a common others-interest in a more visible moral dimension, externalities disappear and the transactions costs tend toward zero on paths like 0Z. This contention finds statistical support in the demonstration in Lynne, Shonkwiler, and Wilson that transactions costs increase as values diverge, which suggests the converse, that transactions costs move to zero as others-interests/values converge. Intriguingly, in the textbook world with zero transactions costs, we now understand this to mean that the others-interests among millions of individuals are in harmony. We now can understand the origin and reality of high transactions costs arising from the disharmony of the others-interest among the same millions of individuals, such as we see in the reality of international disharmony over globalization today.

Perhaps this is what Cheung had in mind. Ideally, everyone rises to the idealized state of a distinct entity. They are sympathetic and act on the mutually shared others-interest(s) so the social costs vanish as the self- and others-interests are jointly pursued at point *B*. With everyone acting this way, the externality concept is no longer needed.⁹ In fact, most forms of government involvement in agriculture would not be needed. With the others-interest internalized, the markets are guided by empathy, while at the same time, the markets influence the character of that empathy.

Critiques of Metaeconomics

Our previous attempts to convince colleagues of the efficacy of the model have raised several issues. The critiques tend to go along one or more of the following lines of questioning.

First, could not the same phenomenon be modeled with interdependent utility, by including arguments reflecting concern for others in the single, self-interest utility function? We are told that the metaeconomics approach of adding, instead, a set of “others-interest” curves does nothing more than show how these “other” terms enter into the utility function, which is perhaps useful, but not a contribution to a new theory. We could not disagree more.

Including additional arguments in the single, self-interest utility function versus accounting for another phenomenon in an entirely new set of indifference curves are profoundly and importantly different. The substantive point being missed in this critique follows from Etzioni (1986, p. 163), who argues that placing others-interest arguments in the self-interest utility function undercuts the central thesis of economic theory, and thoroughly undermines its predictive power. Recall the butcher and baker story from Adam Smith: Each takes action as though guided by an invisible hand. This remains the case with the metaeconomics model and is quite impossible with arguments from someone else’s utility inserted into the single utility function of an individual. This would require that the butcher know the exact utility function of the baker. In contrast, the perceived others-interest in the set of U^O indifference curves represents the somewhat less invisible hand, but not the other person. This ties the individualistic pursuits of the butcher and the baker to the common value system, the common good that cements the food channel together and makes it possible to operate with economic efficiency. In metaeconomics, relationships in the food channel also can be examined at arm’s length just as in microeconomics. The focus is on the common (or not so common) value system, and thus on the role the value system plays in achieving economic efficiency, and not on each person in the channel knowing the utility that others receive.

Second, some ask what is special about point *B*? The answer is that point *B* is not especially unique. It just happens to be that one such point is selected from the infinite numbers of others in the space, albeit it is characterized by the human discipline to find the balance between pleasure and the moral. It is a special point, however, in the sense that it is better than any point outside the (0*G*, 0*M*) region. Movement into that region is a Pareto movement as among the egoistic and empathic parts of the brain, a “win-win” within self. The win-win comes from the symbiotic balancing between self- and others-interest. Also, it is a point that gives the chooser peace of mind that perhaps passes all understanding, and only the individual can define it. Notably, in markets that are both moral and efficient, it will be reflected in the prices and quantities that emerge.

Third, we are asked, would it not somehow be more reasonable to simply think of these two utility curves being weighted or otherwise transformed into one? One might reason this way based on presuming a priori knowledge of the weights on each utility, and thus the slope at point *B* in figure 3. The answer is complex, and rests in the substantive literature on multiple utility (Etzioni, 1986; Lutz); multiple motivations represented in multiple-selves (Elster, 1986); and parent (empathy), child (ego), and adult (in charge for the mentally healthy) representation of humans in the literature of transactional psychology (Berne).

The single-utility model is missing much that is intriguing in human behavior because it does not allow for a less than disciplined decision. It also does not consider the reality of vacillation from one state of mind to the other, from ego to empathy and back, and thus claiming too little for rationality (Elster,

1979; Schelling); the possibility of meta-preferences trumping lesser preferences (George); the reality that commitment to others and the principles they represent often trumps or otherwise conditions the self-interested choice (Frank; Sen, 1977); the possibility of symbiosis in the egoistic and empathic tendencies (Cory, 1999); and human decision complexity, generally. The International Association for Research in Economic Psychology's *Journal of Economic Psychology* is built on the premise that humans are far more complex than can be captured in the single utility model. Many published papers (including our own) in that journal provide scientific evidence that this is the case. The Society for the Advancement of Behavioral Economics espouses a similar view. The group has heavily influenced the *Journal of Socioeconomics* that similarly holds substantive empirical and statistically robust evidence (again, some of ours) on the complexity of humans exceeding what can be analyzed with the single model.

Space precludes examining the richness of this particular dialogue, other than to say that it really reduces down to an empirical question of whether something like food, largely an egoistic (materialistic) good, can be traded in the same units with something like opportunity for agricultural youth, the latter reflecting a phenomenon having a large measure of empathy and a moral dimension to it. Can such a complex, emotional trade-off, arguably involving at least two incommensurable utilities, be adequately represented in one set of iso-utility curves? We suggest in figures 1 and 2 that such trade-offs cannot be made due to the kinds of incommensurable utility that simultaneously flow from the consumption of food. Do we trade units of food that sustain us physically against units of "doing-the-right-thing for agriculture," or, as Khalil (1998) would ask it, are commitments (e.g., to rural youth) and self-interest (e.g., in maximizing profits in an integrated food channel firm) really commensurable as implied by a single set of iso-utility curves?

In addition, while some critiques have admitted the possibility of two utilities, we also do not see the matter resolved by simple weighting. Whether incommensurable or not, this is an empirical issue. Currently, however, we side with Cory (1999), and posit it as symbiotic balancing at work. The outcomes of the joint egoistic and empathic effort are greater than from adding the parts. We achieve a distinct state (siding with Khalil, 1990, who claims Adam Smith also saw this subtlety) that goes beyond a simple weighting.

Recall the triune brain argument that the three parts of the brain act somewhat autonomously as well as interdependently. Is it not at least conceivable that the extent to which each part acts autonomously indicates that each part also measures outcomes in somewhat different units? These units may be characterized as representing at least two underlying, incommensurable fields of utility: one in the pleasure and the other in the moral dimension (Etzioni, 1986). Also, is it not at least an intriguing hypothesis that when the two parts interact, the sum is indeed greater than the result from adding the parts? On the macro scale, can all the private interest outcomes be added to achieve the public interest? Again, this is an empirical question.¹⁰

Fourth, does the benefit of adding another set of indifference curves, which makes the model mathematically less tractable, exceed the costs? Also, does not this lack of specificity in the theoretical model that involves needing to know what is going on in the minds of the economic agents force us to be mainly empiricists?

Admittedly, it is more complex to handle two utilities than one. The individual is modeled as seeking satisfactory outcomes that may vary from decision to decision, and may even be different for any given kind of decision at different times. Also, metaeconomics is by its nature empirical in its approach. It recognizes the potential for a full-range of people with alternative balances of the egoistic and empathic brain parts, making it necessary to estimate proxies for two latent, unobservable utilities. It also suggests the need to rely more on simulators rather than optimizers, to allow for stochastic outcomes rather than the certainty suggested by analytical solutions. In a nutshell, by adding another potential path that may on any given day be competitive or complementary with the other, the analytical beauty of the solution is sacrificed for the messiness of simulated possibilities based on empirical, scientific measurements.

Even though less analytical and more empirical, we can add our own kind of analytical beauty. In contrast to the standard model, we can explain what an empathic Mother Theresa is doing along path 0M. At the same time, and with equal precision, we can explain what an egoistical Scrooge is doing on path 0G. We can also explain how even Mother Theresa is at times egoistic along her own path 0G. Even Scrooge is occasionally taking empathic action (especially after the third ghost visits him, at least until the next holiday), with vacillation not only reasonable but economically efficient. This analytical richness is added while at the same time, metaeconomics gives a theoretical basis for explaining that most people perhaps do not optimize at all, but rather find satisfactory outcomes on paths such as 0Z. Metaeconomics asks the scientist to consider some intriguing questions that would not generally be asked under the single-utility framework, and suggests some reasonable approaches to find answers in areas not currently under the standard light posts.

Fifth, we often hear that game theory solves the problem, with the notion that the moral dimension is captured in the strategic and cooperative behavior that evolves in games with feedback. I see some merit in the game theoretic approach, and encourage any game theorists to join us in a common quest. I would only ask, however, that the game theorists also spend some time in the neuroscience literature and not just presume that every action individuals take in the game reflects only the self-interest. Empathy may also be at work.

Finally, one of the most intriguing critiques has been that our metaeconomic analysis leads to interesting and new questions and insights, while at the same time the model we are using is deemed flawed! We are reminded of Khalil's criterion for deciding when an upstart theory needs to start replacing the conventional wisdom of a mainstream theory. As Khalil (1998, p. 614) notes, a substantive testing ground is "whether the proposed . . . is less burdened with empirical anomalies than alternative ones."

We believe, along with those who critique it, that metaeconomics is adding interesting and new insights. By solving empirical anomalies through having greater analytical power, metaeconomics carries fewer burdens and perhaps is less flawed than that which is standard economics. Intriguingly, the standard model is the default case, embedded within the metaeconomics approach. Nothing from standard economics need be denied, if after scientific test, empathy and an others-interest is found not to be a force in the decision at hand.

Conclusions

First, we need to understand the nature of the values in the invisible hand and underlying the old and the new agricultural paradigm, as well as that of standard economics. As Nelson (1997, p. 194) suggests, “the case for the market mechanism is ultimately a theological argument.” A values approach, demonstrating that we need to go beyond reason, holds the potential to shed new light on the path of industrialization. Castle (1998a) has noted the normative basis for all rural studies, including study of the interaction with industrialization.

Second, we now see more clearly why the externality and social cost concepts were added to economics. With an operant others-interest widely shared, many externalities would ultimately vanish. These may include environmental pollution from industrial farms (whether small or large), as well as decline in rural communities, hegemonic actions in international trade, food produced in ways not always meeting higher level needs, and other various and sundry social costs, including the gloom among agricultural youth. The focus shifts to evolving a shared others-interest as the ultimate solution to the externality problem. As the French farmer noted when checking himself into jail for his part in vandalizing a new McDonald’s store, “My struggle remains the same . . . the battle against globalization and for the right of people to feed themselves as they choose” (*New York Times*). Metaeconomics suggests this holds the potential for the start of a megalogue over values and the formation of that shared others-interest.

Third, we seemingly need to teach students about the distinct entity consistent with Adam Smith’s original ideas and shift the emphasis away from focusing attention only on the opportunistic, egoistic part of the human psychology. We need to work toward the evolution of empathy, reflected in the evolving jointness of competitive and cooperative behavior usually found among other university students as graduation is reached, but “conspicuously absent for economics majors” (Frank, Gilovich, and Regan, p. 169) at the same stage of development. The metaphor we choose to teach may actually influence the kind of world in which we live.

Fourth, the development of a kind of metaeconomics, one that transcends examining only the self-interest by including the moral dimension, seemingly is a way to revive moral inquiry within economics. At some point, the metaphor of a moral (invisible) hand would become a technical, visible aspect of economics, and be subject to scientific scrutiny and test.¹¹ Ironically, by adding inquiry into the subjective moral dimension, we add objectivity to our scientific, economic inquiry. It may be worthwhile to put new energy into this moral quest for objectivity, as Wolf notes, a virtue in itself.

Acknowledgments

The constructive comments from departmental and journal reviewers and journal editors are greatly appreciated. The paper is much better for it. This is University of Nebraska–Lincoln, Institute of Agriculture and Natural Resources, Agricultural Research Division Journal Series number 13016.

Endnotes

¹ Nelson (1991) provides a compelling, also postmodernist, case for the need to go beyond reason in economic analysis, as well as in the real world of reaching for heaven on earth through progressive economic development.

² For an earlier attempt at such an integration, see an empirical test in Lynne and Casey followed by inferential theory building in Lynne.

³ Frisch was describing factorially determined production (internal perhaps to a sheep) of two or more incommensurable products, for example, wool and mutton. I am, by analogy, describing here a kind of factorially determined production (internal to the person's brain) of two incommensurable utilities, a pleasure utility and a moral utility.

⁴ By, in effect, treating both paths as one, we are suggesting harmony, people at peace between the two forces in the brain that perhaps are more naturally in conflict. Also, such harmony is presumed, without empirical support, in standard analysis.

⁵ Hoop barns are a low-investment, low-technology way to raise hogs, simply composed of (usually) wooden walls with a canvas type hoop. The barn resembles an Oregon trail covered wagon without the wheels.

⁶ This zone has also been depicted as elliptical with convergence of 0G and 0M at a point Z (see Lynne). The appeal of a convergence to a common point Z rests in the notion that, ideally, individuals will make progress over their lifetimes to a point of self-actualization, wherein the dichotomies have been fused, in the spirit of Maslow (p. 232). This is to say, we might expect an unprecedented peace of mind as we resolve the natural tension between ego and empathy on this path of perpetual peace on this now single path 0Z. The resulting income starting at the point of convergence would also reflect true wealth earned in jointly moral and efficient ways.

⁷ As a reviewer noted, we are not illustrating the micro to macro transition in this figure showing how the family actions are aggregated. The reviewer suggested that we consider plotting the aggregated U^S and U^O functions against a production possibility frontier. This perhaps would add useful insights, but seemingly takes us too far afield from the main point of this paper, that individuals are likely pursuing something beyond only U^S . Also, we feel rather uncomfortable deriving the aggregate functions in such a way in that the U^O dimension evolves in consort with others, reflecting networks, norms, and trust. It may not be as easy as simply summing across the individual U^O functions. Instead, for our purposes here, we ask the reader to envision a simple supply and demand diagram for family-produced food, and set the aggregation problem aside for the moment. We posit that more individuals acting on the moral motivation to encourage family operations are entering the f (family-produced food) market. The result is that the demand for f will shift, thus causing price moving from p' to the higher price p . We also suggest slightly lower prices for all other goods with the new budget line RR' .

⁸ As a reviewer noted, one can also envision prices evolving endogenously by depicting the budget line as convex to the origin, with the bulge now causing even greater price response to empathy, and the market perhaps even having more influence on empathy.

⁹ Having said that, I would also perhaps be the last to suggest that we set aside the economic literature on externalities. On the contrary, there will likely always be a few that will act largely without empathy, that is, place virtually all their emphasis on path 0G rather than anything close to path 0M. For this group, perhaps far smaller in number than implied by the vastness of the externality literature, much that is useful rests in thinking of the world as beset with externalities.

¹⁰ It also seems somehow more scientific to test for more than one kind of utility than to presume only one. Also, if the empirical test finds no empathy at work, we are back to the single utility function. So what have we lost by asking the scientific question? Indeed, the act of testing would now help economists be less ideologically attached to a particular kind of empathic system hidden in one set of implicitly "weighted" indifference curves. Is it not of scientific importance to ask more fundamental questions behind what motivates the preferences and the behavior? Also, even if the two utilities are found to both exist and to be commensurable, the worst-case scenario is that we have managed to decompose the classic, single utility function into more fundamental psychological variables, and thus know what force is actually at work in any choice, an act useful in itself.

¹¹ Notice, too, how the "discipline of the market" which is a metaphor not unrelated to the notion of discipline in the strict father morality system could now also be subjected to scientific evaluation.

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