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Towards A New Paradigm for Economics

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ABSTRACT. Current economic theory is mainly concerned with the factors which affect the wealth of nations. Issues of income distribution and elimination of poverty and deprivation are secondary. We suggest an alternative formulation which would make hunger and homelessness, and poverty in general, the central concern of economics and economists.

1. Focus of Conventional Economics is Wealth and not Poverty

Current Economic theory is firmly set in the mold structured by Adam Smith (1776). His concern was to look into factors which affect the wealth (and hence power, prosperity) of nations considered as a whole. Issues of income distribution are secondary, since wealth belongs to the nation regardless of how it is distributed among individuals. Since then, economists have been primarily interested in wealth and power, and not so much in removing poverty, hunger and economic misery. Malthus (1798) provided a convenient sop for consciences, showing that poverty arose as a consequence of natural laws (all proven wrong empirically later) and the only cure was to reduce the birth rate of the poor. Tawney (1926) has looked at the process by which morality got divorced from economics in much greater detail; because of this, questions of fairness, equity, justice no longer form part of current economic discourse.

For those of us who are human beings first and economists second, the consequences of this preoccupation with wealth and power have been disastrous. One can receive a Ph.D. in economics without receiving one word of information about the extent of poverty in the world, or the meaning of hunger and deprivation. In informal conversation, an eminent labor economist, said that there was no point in policies to eradicate poverty since the bottom 10% of the income distribution would always be poor. There is no natural way to define poverty in our microeconomic theory, and our tools shape the way we look at the world. To a much bigger extent than realized, the failure of our theories to recognize the poor affects their fates. Trade theorists insist that free trade generates more global wealth (under ideal conditions) and hence *can* lead to a Pareto improvement if the wealth is redistributed. At the policy level, economists press hard for free trade but make no attempt to ensure that the redistribution will also take place. The failure of our theories at the macro and micro levels to recognize the existence of the poor leads numerous types of policy failures both at the theoretical and at the practical levels.

Numerous attacks have been mounted on the neoclassical paradigm. On the empirical side, it appears that people rarely behave "rationally," when rationality is defined in the neoclassical sense. A prominent challenger on this side has been Herbert Simons (1982), who developed the concept of "bounded rationality." Studies of decision making by psychologists show systematic deviations from neoclassical rationality, as documented by Kahneman, and Tversky (1985), etc. Applied studies of consumer behavior show systematic flaws in the utility model, the main ones being the relative instability of consumer preferences, and the effects of information/misinformation. In econometric studies, systems of demand equations based on utilities can be constructed only under rather restrictive assumptions. Such assumptions typically show systematic violations of predictions such as Slutsky symmetry conditions. On the other hand, with no restrictions, Afriat's Theorem (1967) shows that all observable patterns of aggregate demand are compatible with some underlying utility functions. Thus the theory is vacuous, in the sense that it yields no implications about observable aggregate demand functions. Experimental game theorists have also confirmed systematic violations of even the simple dominance principle (according to which people prefer more money to less) in the ultimatum game.

Kuhn (1996) has shown that counter examples never suffice to replace a paradigm. It is only the emergence of a new paradigm which displaces the old one. Convincing demonstrations of the failures of conventional micro and macro theories have been given by

many economists, working from numerous different points of view and different schools of thought. However, no clear and well-defined alternative has emerged, partly because there is no agreement to a common framework among those who seek to displace conventional theory. In this paper we propose a simple alternative which could be used to replace conventional micro theory, and could command consensus among very diverse schools of thought which are critical of conventional theory. Adoption of this as shared paradigm, regardless of further refinements which may be added by adherents of different schools, would create a unity among the dissenters and perhaps create a coherent alternative to conventional economics.

2. The Heart of the Neoclassical Model

At the heart of the neoclassical model lie some simplistic assumptions about human behavior, plus some resolutions. The simplistic assumption is that human beings prefer more to less - from here, it is a few short steps to utility functions. Additionally we resolve not to study these preferences, how they are formed and how they change. This task is allocated to psychologists. Consumer sovereignty represents the resolve not to judge or to attempt to change these preferences. In addition we resolve not to measure intensity of preference, and especially resolve not to make interpersonal comparisons of utility, as this is not scientific. We also embrace the empiricist philosophy of science. This leads us to study choices, which are observable, and avoid preferences which have more to do with the "unobservable" internal states of satisfaction or dissatisfaction resulting from choices. One consequence of demarcating our field of study in this way is that it makes it impossible to provide "scientific" support for pro-poor policies. We cannot even recommend taking away a glass of vintage wine from a multi-millionaire to give bread to hungry children as professional economists. The loss to the millionaire cannot be compared to, added to or subtracted from, the gain to the children. When a conscience-stricken economist does wish to recommend some such measure, he has to resort to subterfuge such as measuring productivity loss due to poor health of laborers, or increases in crime rate. The hunger of the children cannot be a factor in his "scientific" calculations.

3. An Alternative Microeconomic Framework

We propose to make a modification to this basic set of assumptions. In some ways it is a trivial change, and some may criticize it for conceding too much to conventional economics. The net effect of the change is to make poverty a visible part of the utility model in a mathematically elegant way. Despite the surface appearance that the change is superficial, it has far-reaching consequences, as we shall see.

The proposal is to take the basic utility function of human beings as a lexicographic ordering. Every bundle of goods x , is evaluated using two functions $(U(x), V(x))$. Given bundles of goods x and y comparison between them is done first on the basis of $U(x)$ and $U(y)$. If $U(x) > U(y)$, then x is preferred to y . If $U(x) = U(y)$ then comparison is done by looking at the second component of the utility function, with x being preferred to y if $V(x) > V(y)$. U is interpreted as the basic needs function. If a man is hungry, he will compare two bundles only with respect to their food content. Only after his hunger is fulfilled will he turn to comparing other aspects. U will have certain properties to conform to this interpretation. It should have satiation points beyond which additional goods will not add utility. In addition, it should be sensitive only to certain types of goods (basic needs) and insensitive to other types (luxuries). We would expect $V(x)$ to be relatively unstable (easily influenced by advertising, etc.) and have externalities (my utility could depend on the commodities being consumed by my neighbors). However, U might be considered as being biologically and socially determined to some extent. There is room for a number of different interpretations in conformity with basic idea. In order to allow for wide participation in development of this alternative paradigm, we do not insist on any particular fixed interpretation for U and V . It is enough to assume that choices of those who have unfulfilled basic needs will differ (being based on U alone) from those who have fulfilled their basic needs. This allows a natural partition of the population into poor and not-poor, and makes the poor a visible part of our theory. By

assumption, U reaches satiation for every person; let U^* be the maximum value that U can attain (which may vary from person to person - the actual numerical value does not mean anything as in the conventional model).

Definition: A person is poor when he has a commodity bundle x such that $U(x) < U^*$.

Language is powerful. When a concept cannot be defined within the mainstream economic framework, it becomes invisible. It is this invisibility which allows expert economists to be completely ignorant about the extent and nature of poverty in the world. Our redefinition of the basic utility function has the virtue of allowing us to talk about poverty in a natural way. Currently, those concerned with poverty can either use the complex and technical framework of income distribution theory, or else go outside mainstream concepts and introduce *ad-hoc* subjective extensions. Because we lack the right tools, economists usually study within the income distribution framework. But this actually shifts the problem in subtle way. The concern of income distribution theory is with equality/inequality of incomes, which is quite unrelated to poverty – elimination of poverty is compatible with large amount of inequality in income distribution.

One of the virtues of the lexicographic utility function as defined above is that it fits squarely into the neoclassical framework. The conventional utility function is obtained from primitive preferences by imposing the mathematical axiom of "continuity." It is clear that this assumption is made for mathematical convenience alone. Dropping continuity leads to the possibility of the lexicographic utility functions of the type we have introduced above. Can this minor technical change, which does not challenge any of the central tenets of neoclassical methodology and mindset, have an important impact? We hope to show that it can.

4. A New Paradigm: Hunger and Homelessness

According to standard textbooks (for example Samuelson and Nordhaus) the key ideas in economics are that goods are scarce and that society must use its resources efficiently. Samuelson and Nordhaus (2001) go through two pages of discussion of why one would want to study economics without mentioning hunger, homelessness, and disease. It is heartbreaking that poverty gets a tangential mention as one item among a list of seven definitions: *economics examines the distribution of income and suggests ways that the poor can be helped without harming the performance of the economy*. The sacred goal of efficient production of goods takes precedence over the helping of the poor, according to this Bible of economics. Our purpose in proposing a new paradigm is to change this mindset. We would like to put hunger, homelessness, and misery due to lack of economic resources at the heart of the economics - to consider these issues to be the main economic problems. This is entirely different from "scarcity and efficiency" as well as more classical views of economics as a source for power and prosperity of nations. Adding one ethical principle to our lexicographic utility functions shows how our framework changes the central problems of economics:

Pareto Principle (Lexicographic form): An allocation (x_1, x_2, \dots, x_n) of commodity bundles to individuals with utility functions (U_i, V_i) for $i=1, 2, \dots, n$ is socially preferable to an alternative allocation (y_1, y_2, \dots, y_n) if either (a) $U_i(x_i) > U_i(y_i)$ for all i , with strict inequality for at least one i , or (b) $U_i(x_i) = U_i(y_i)$ for all i , and $V_i(x_i) > V_i(y_i)$ for all i with strict inequality for at least one i .

With lexicographic orderings, the above is clearly the mathematically appropriate superstructure. Ethically, the judgement that feeding the hungry takes precedence over the provision of luxury goods is almost universally agreed to. Disagreements take place over tactics - that is, provision of food, subsidies etc. might damage the interest of the poor in the long run by reducing their motivation to work. We do not know of disagreements over the final welfare assessment that reduction of hunger takes precedence over less urgent needs. Without getting into the impossibly complex issue of interpersonal utility comparison, our lexicographic structure permits modest comparisons between people living below subsistence levels and at or above subsistence levels. While the exact poverty line may be fuzzy, its existence is not to be in doubt. Malnourishment, reduction in life expectancies, and numerous other biologically and medically well defined phenomena provide objective bases for assessing subsistence levels. At the theoretical level, it is enough to agree that the phenomena of poverty exists; the exact quantification (or even the quantifiability) is not relevant for the considerations which follow.

If we accept this definition, the problems of scarcity and efficiency no longer remain the basic economic problems. The current state of the world is that vast numbers of poor people exist. The economic resources of the world are far more than adequate to eliminate hunger worldwide. Thus *scarcity* is not the cause of hunger and economic misery. As Sen (1986) has shown in his striking studies, thousands of people die of hunger when there is enough grain available locally to feed all of them. The main economic problem becomes one of discovering why there exists economic misery when there are enough resources to eliminate it, and furthermore, there is widespread agreement on the ethical principle that people should not be allowed to starve to death. Efficiency is no longer a central concern. A proposal which eliminated hunger and poverty while wasting half the resources in the process would still produce a Pareto (L) improvement - the (L) is for lexicographic, to distinguish it from the original Pareto Principle.

A red herring that is frequently raised at this point is that we have input a strong ethical judgement to arrive at this strong result, which re-orient us regarding the fundamental economic problems. Thus we have jumped ship from positive economics to a normative framework. In actual fact, there is no escaping the ethical dimension of the problem. Consider a two person society, where one of them has far more than enough for his needs while the other is about to die of hunger. To say that one should not intervene and redistribute resources is as strong an ethical judgement as to say that one should intervene. There is no neutral ground and no way to avoid introducing a moral judgement. The moral judgement implicit in the original Pareto principle holds property as sacred - moves to save lives cannot be justified if they require violating property rights of others. The moral judgement explicit in our reformulation holds lives to be sacred, and sacrifices property rights to this higher principle.

5. Physics-envy, Positivism and Free Will

Pre-Galileo, the Bible was the only certain source of knowledge. As religious belief waned in Europe, and the accomplishments of Newton dazzled the world, scientific knowledge was placed on this pedestal. Symbolically, in November 10, 1793, the Christian God was deposed in Notre Dame, in Paris, by the party of the Hebertists and atheistic Reason proclaimed as anti-goddess. The adjective "scientific" became synonymous for rational, logical, modern and enlightened while "unscientific" became a pejorative. Even though studies of human beings, languages, cultures had little in common with physics, the tag "sciences" was added to social in a scramble for respectability. It was only after Kuhn's (1966) influential book, *The Structure of Scientific Revolutions*, that the uncertain status of scientific knowledge became apparent. That scientific theories cannot claim certainty is apparent from the fact that every new set of scientific journals demonstrates the falsehood of some earlier scientific theories. However, the enormous respect commanded by science prevented people from seeing/saying this until recently, much as in the case of the Emperor's new clothes. Now the pendulum has swung in the opposite direction, with some people claiming that scientific theories emerge from social consensus and have no special claims to truth/validity. The powerful effects of technology in transforming the world and society cannot be denied. These must be due to some special properties of scientific knowledge and how it accumulates, but exactly what these properties are is very unclear in a post-Kuhnian world. It does seem clear that self-conscious attempts to mimic the "scientific" method in the social sciences have caused considerable harm - human beings differ in important ways from physical particles. In developing our new paradigm, we therefore recommend moving away from writing "Collected Scientific Works" to devising useful methodologies for studying the subjects of our interest.

Along with a paradigm shift, we also need to free ourselves from certain methodological strictures which were fashionable in the early twentieth century. Since the 1960's, philosophers have been quarrelling about who killed 'positivism' or 'empiricism'. Meanwhile, economists continue to embrace the corpse. We now discuss why it is essential to dispose of this burden, to make progress in economics.

Positivist attitudes prevent us from deeper study of internal states of human beings, like happiness, sadness, etc. However, a deeper understanding of human beings is essential for progress in economics. Consider, for example, two possibilities: (A) human beings derive utility/pleasure/satisfaction from their own consumption, without regards to others, and (B) the pleasure/satisfaction derived from consumption depends *solely* on relative position of the consumption bundle within the society. Suitable economic policies would differ drastically

in societies where (A) holds from those where (B) holds. Therefore, an economist cannot be agnostic about this issue. Yet the conventional demarcation of the field leaves this question to psychologists and suggests that economists can get by without knowing the answer to this question. Additionally, consider a society such as that of the Amish in Pennsylvania, which strives for simplicity, and shuns modernism and materialism. Surely economics, both descriptive and prescriptive, would be different in such societies. From the Philosophers-Kings of Plato, to Christian Ascetics and Zen Buddhists, there have always been communities which have preached and practiced the virtue of simplicity, and denied that greater consumption will lead to greater happiness. While communities of ascetics have typically been very small minorities, with little impact on aggregate economic activity, they do demonstrate the extremely variable range of human behavior, and the difficulty of setting down universal laws characterizing it.

An even more damaging possibility must be faced squarely by economists. Human beings are free, and free to choose and change their utility functions as an act of free will. In times of war, appeals to patriotism elicit large changes in consumer behavior. Conventional micro theory is simply not equipped to analyze policy designed to change utility functions. In times of gasoline shortage, how can we compare a price increase to a request to sacrifice inessential car trips for the sake of your country? If consumers feel pleasure in being able to contribute to the welfare of the country by sacrificing personal pleasures, and such changes can be induced by policy, should we analyze consequences using pre-policy utility functions or post-policy utility functions? How can we do a cost benefit analysis of policies designed to induce changes in utility? Consumer Sovereignty assumes that utilities are given *a priori* and consumers choose on the basis of these preferences. Empirical evidence shows that utility functions and preferences are constructed on the basis of sequences of choices to some extent. If preferences can be manipulated by manipulating the sequence of choices faced by consumers, consumer sovereignty cannot be maintained and welfare implications of policies must take this into account. Another problem with consumer sovereignty is issues like smoking and obesity, both of which suggest that consumers can make choices against their own best interests. It is impossible to state such problems within the extremely restrictive current economic paradigm. Here again, our lexicographic model is useful in that we would expect the basic needs function $U(.)$ to be free of these problems, while the second component $V(.)$ would be more likely to be subject to the types of problems discussed here.

Dropping consumer sovereignty, as proposed above, has drastic consequences. If utility functions are malleable, if they can be changed by acts of free will or by social conditioning, or if there are significant externalities in the utility functions, the central idea of modern economic theory no longer remains valid. It is no longer the case that the market mechanism has any special claim to efficiency or any distinction as a reasonable way of allocating resources within a society.

Multiple equilibria are ubiquitous in complicated games. This is another place where current methodology impedes research by ignoring free will and treating humans as physical particles with determinate laws. In line with current methodology one line of research looks into prevailing social norms as a means of determining which of the equilibria will emerge. Taking free will into account will introduce some indeterminacy. Even more interesting is the possibility of social engineering. Very likely a talk on the virtues of sacrifice for others would induce cooperative outcomes in a Prisoners Dilemma, while a discussion of the rationality of selfishness would induce the non-cooperative outcome. If this is true, it would lead to important theoretical and practical consideration currently outside the self-demarcated field of study for microeconomics.

The traditional escape from the complex problems sketched above is the positive/normative distinction, grounded in the empiricist tradition. We merely attempt to describe observable behavior in the economics domain, leaving the deeper understanding of the human motivations to psychologists. However, if deeper motivations affect choices in the economic realm in predictable ways, and the value of our study of economics depends critically on its impact on human welfare, we cannot afford to be ignorant of these aspects of human behavior. The analytic-synthetic distinction of logical positivists was shown to be invalid by Quine (1982). The positive/normative distinction is similarly invalid. A policy to give small plots of land to peasants was under consideration in Italy at the time of Pareto. A *positive* implication of the policy is that the rich landlords will have less property (and hence reduced consumption streams?), while the peasant have more. Another *positive* implication is likely to be that peasants health and longevity will improve, while there will

be no measurable harmful impact on health and life of landlords. The act of choosing to present the first implication and not the second at sessions deliberating this policy change is a normative one. Any economic policy will impact on thousands of lives and have very complex positive consequences. Selection of a *salient set of consequence*, or a summary, will always be a normative act, guided by ones feelings as to what is important and what is not.

6. A Pot-Pourri of Research Problems

Armed with the tool of the lexicographic utility function, we can re-examine nearly all existing topics in current micro and macro economics. Thus the frontier for research is vast. Below we pick a small set of interesting issues which arise most directly.

Catering to the proclivities of my own training as a neoclassical economist, let us begin with the theoretical foundations. Would there be an equilibrium in an exchange economy which could be supported by prices? The answer is no. Consider a two person economy where one is poor and the other is rich. For arbitrarily small amounts of bread (or necessities) the rich man can get arbitrarily large amounts of nonessential commodities which the poor man may be endowed with. This leads to possibility of "exploitation," a word which has no meaning in conventional economics. The desperately unfair deals that hungry men will accept are graphically portrayed in *Grapes of Wrath*, a depression era novel by Steinbeck (1939). In standard economics, all exchanges voluntarily agreed to by both parties are equally "fair" - both parties must gain by such exchanges, and it is impossible to compare the two gains to see which has gained more. In our model, the rich can exploit the poor due to their more exigent needs. The Marxist model of capitalist exploitation of laborers can be studied within a neoclassical framework using the lexicographic utility functions.

Applying lexicographic utilities to trade theory yields a new argument against free trade. Consider an agricultural economy consisting of peasants and a few rich landlords. In autarky, there is enough food for everybody. With free trade, the landlords will export food and other agricultural products, and import luxury goods. The price of foods will rise, and the quantity consumed domestically will fall, leading to the possibility that starvation/hunger will increase among the peasants. This will lead to a Pareto (L) inferior outcome from free trade. Of course, the increased price of food should translate in higher wages for peasants, offsetting the price rise to some extent. But there is also the possibility that using the additional leverage of the hunger of the peasants, all surplus could be extracted by the landlords, so that there is no wage increase. A lot will depend on the details of how we model the situation, but there are many more possibilities than exist under conventional models.

It seems clear that the market mechanism is unfriendly to the poor, and will lead to inferior outcomes. Our model provides a clear theoretical basis for social welfare programs of the type implemented in Europe, and to a lesser extent USA. Sen (1986) has suggested that it is these programs which have eliminated famines in Europe over the past century or so. The lexicographic functions will impact on taxation policy, and provide support for negative income taxes and numerous other pro-poor policy initiatives. Cost-Benefit analysis of projects would require separate examination of the impact of project on the poor and on poverty to be valid in the proposed utility framework. Thus our proposal creates a theoretical basis for something which is widely agreed to, and is being carried out in many cases using informal and atheoretical apparatus.

7. Conclusions

A very minor change in a technical axiom (continuity of preferences) leads to model with strikingly different features from that of the conventional micro model. If nothing else, this demonstrates how non-robust the main features of conventional economics are. A similar conclusion of non-robustness emerges from game theory, where outcomes of games are very sensitive to minor changes in structure, strategies and payoffs. This non-robustness all the more damning since economic methodology pays very little attention to human behavior and sources of human welfare. It strikes me as astonishing that an economist can sit in a closed room and demonstrate the optimality of free trade by drawing lines on a board, without any reference to history or understanding of motivations and goals of human beings. Without a more solid empirical grounding, how can we select among a large class of alternatives with radically different implications?

Our proposed alternative utility model is based on a set of implicit assumptions which are worth bringing out here. We believe that the welfare of the rich correlates much less with their absolute wealth and much more with their relative standing in society. This makes economic striving into a rat race, where everybody strives to get ahead but net gain to society is zero among the wealthy. This belief is strongly supported by a variety of empirical evidence (Frey & Stutzer 2002, and references cited there). If this is true there is not much point in trying to increase the size of the pie, at least for the wealthy people in the economy. Instead, welfare would be increased by teaching people to be less competitive and materialistic. The situation is very different for the poor. We should not be teaching spirituality to the estimated 800 million hungry when 1/3 of the US population suffers from obesity. The means and resources are available to eliminate hunger in the world, but economists have never espoused this cause. They have been enthusiastic supporters of pro-market reforms and free trade, but rarely of income re-distribution. We believe that this is partly due to the theoretical blinders that we grow up with. Our central model does not allow us to perceive poverty and hunger, and therefore professional economists do not pay these issues the attention that they deserve. We believe that the lexicographic model has the potential of bringing poverty to the attention of the economists in a framework with which they are comfortable. The axiomatization of poverty has the potential of bringing poverty to the center of economic discourse, much as probability became a respectable area of mathematics after it was axiomatized by Kolmogorov(1950). Substantial disagreements can exist regarding why poverty exists and how it can be removed; we do not intend to advocate any particular framework over others here. We do believe that poverty and its removal is the central problem that economists should be concerned with, rather than the tangential issue it currently is. We hope that the framework proposed may prove to be a means of moving in that direction.

8. References

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