While many ideas, concepts and metaphors discussed in *Arrows of Time*, find their echo in Sharma's earlier books in the series i.e., *Creation From Shunnya, Management in New Age : Western Windows and Eastern Doors, Quantum Rope : Science, Mysticism and Management. Arrows of Time* is, in a sense, an extension of these earlier works. More specifically, Dr. Sharma's *Arrows of Time* is a metaphoric representation of Time as the factor in the increase of entropy in nature. No doubt, his use of Time as a metaphor for making the convergence of science and spirituality provides an important insight for todays' managers, administrators and policy makers whose professional spadework of time always vary.

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A Critique of Welfare Economics by I. M. D. Little, A Retrospective Reissue, New Delhi, Oxford University Press, 2003, 302 pages, Price Rs. 595

At the time of its first publication in 1950, Ian Little's *A Critique of Welfare Economics* was perhaps the only comprehensive book on Welfare Economics. It was not of course a conventional goody-goody textbook. It was a dissertation asserting a different methodology and proposing a different emphasis from what was then prevalent in welfare economics. The book was certainly successful in provoking a lively debate in the 1950's. A second edition of the book was published in 1957. That was also the year of publication of Jan Graaff's *Theoretical Welfare Economics* (Cambridge : Cambridge University Press, 1957) which quickly became *the* textbook on the subject. Now after almost half a century, Oxford University Press has brought a reissue of the 1957 edition with a new preface by the author that attempts to put the work in perspective.

Welfare Economics is devoted to building foundations for economic policy. It seeks to replace *ad hoc* prescriptions with rationalizable decision-making. In the designing of economic policy, the slippery question of predicting the consequences of a policy action is of course ever-present, but that question belongs to the realm of

"descriptive" economics and not welfare economics. What makes welfare economics complicated is that it is about *collective* well being. It is about deciding what changes would be good for society *as a whole.* This is not an easy agenda to tackle because most changes make some people better off only at the *expense* of others. An increase in dollar reserves, for example, strengthens the rupee against the dollar to the delight of importers but at the expense of exporters. How does one set off one person's gain against another person's loss ?

An important issue in welfare economics has therefore been the evaluation of *interpersonal* gains and losses arising from a policy move. One can begin by weeding out the comfortable cases in which the question doesn't arise at all, cases in which either no one suffers or everyone does. In the first case one says that the move is socially for the better (or no worse) and is christened a *Pareto-improvement* (after the early Italian economist, Vilfredo Pareto). If such is the case then the initial situation involves a *deadweight loss* and is seen to be clearly (Pareto)-*inefficient.* In other cases, if some people gain, then there will be others who will lose. If the only changes that are economically feasible are of this type, then we say that the initial situation is Pareto-optimal or Pareto-efficient.

The Pareto criterion obviously has a limited reach. Even if only one person (may be a very rich person) would suffer a tiny bit while all others (including some that are miserably poor) were to gain tremendously, the move cannot be declared to be an improvement if one confines oneself to the Pareto criterion. This is hardly satisfactory, so we must move on. There is then no escaping the need for grappling with interpersonal comparisons of gains and losses. Under the influence of Lionel Robbins's influential work (An Essay on the Nature and Significance of Economic Science, London : Macmillan, 1935), many economists had come to regard interpersonal comparisons of gains and losses as being methodologically unacceptable. Hence these were regarded as best avoided in order to preserve the "sanctity" of scientific analysis.

The *Compensation Tests* (formulated by Kaldor and by Hicks) attempted to get past this difficulty by asking what would happen if the gainers from the change *could* compensate the losers and still be better off (N. Kaldor, "Welfare Propositions of

Economics and Interpersonal Comparisons of Utility", Economic Journal, 1939; J. R. Hicks. "Foundations of Welfare Economics", Economic Journal, 1939). In that case in the event of compensations being paid, there would be no losers, only gainers, so the post-compensation change would clearly be a Pareto-improvement. The Kaldor-Hicks criterion then proposed that so long as compensations are in principle Pareto improving the move should be declared to be socially desirable *regardless of whether compensations are in fact paid.*

This, roughly, is the point of departure for Little in 1950. Without elaborating on all aspects of the Little critique, two of the more important aspects may be mentioned. First, Little offered a different methodology for assessing individual gains and loses. He launched a forceful attack on "utilitarianism", and argued that welfare economics should be based on individual *choices* rather than on individual *utilities*. This is what has been described as the "behaviorist" position and is similar to the approach adopted by Samuelson for his Revealed Preference theory (Samuelson, "A Note on the Pure Theory of Consumer Behavior", Economics 5, 1938). There is however a difference between the two. Suppose that I am observed to choose A over B. Then Samuelson would infer that I did so because I *preferred* A to B, whereas Little would simply say that I am better off having chosen A rather than B. The two statements are not the same. (To take an example, I may be better off not voting for my preferred candidate if she has no chance of winning). Having no room for utilities or for the concept of indifference, Little prefers to work in terms of "behavior lines", rather than in terms of indifference curves or utility possibility contours.

The other point that Little stressed was the need to include distributional judgements explicitly in welfare criterion. Consider a move that will further impoverish the poorest segments of the population in a country with a rather unequal distribution of wealth. It is possible that the move benefits hugely the very rich, and it is easily possible for them to compensate the losers and still retain a large part of their gains. According to the Kaldor-Hicks Compensation Criterion, the move is socially desirable even though compensations are not paid. The objection from Little is that in this case, if compensation is not paid then the distribution of wealth is worsened

by the move, hence it is not justifiable to claim that the move is socially an improvement. Little therefore proposed that the move should be regarded as an improvement only if the distribution is not worsened.

In the context of the state of the literature in the 1950's, these points were extremely timely. But much has happened since 1957 and both aspects have been extensively researched. Even by the late 1960's substantial changes had taken place, excellent testimony to which is available in Amartya Sen's classic *Collective Choice and Social Welfare,* first published in 1970 (San Francisco : Holden-Day). If anything, the tempo quickened in the 1970's, the major contributor being Sen himself (see his Choice, Welfare and Measurement, Oxford : Oxford University Press, 1982). The present book is not a new edition, only a reissue. It is therefore not expected that these substantial subsequent developments be incorporated in the contents. However the nagging question that will not go away is this : exactly who will be asked to look up Little's 1957 book? The new preface by the author makes no attempt to put the arguments in the perspective of subsequent developments, and whatever comments the author has to offer are anecdotal and cursory, and confined to debates of the fifties and sixties. Since there are no references to subsequent literature, new readers may conclude that welfare economics of the post-1970's period took a direction that had nothing to add to the concerns dealt with in Little's book.

That would be very misleading.

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Perspectives on Industrial Ecology by D. Bourg and S. Erkman (Eds.) (2003) Sheffield : Greenleaf Publishing. 384pp. £40.00, US$75.00.

As growing evidence of the ecological unsustainability of economic activities accumulates, the major share of the blame is being borne by the industries. Starting from the period of the Industrial Revolution, the industrial sector has been accused