

Rejoinder

The article, "The lack of progress in economics,"¹ to which Partha Dasgupta and Frank Hahn have now responded,² posed the question of whether any of the four theoretical constructs which are integral to the prevailing paradigm in economics have a basis in reality or whether, instead, they are metaphysical--without any claim to scientific validity. The four theoretical constructs in dispute are indifference curves, isoquants, positively sloped industry supply curves and marginal physical product of capital curves.

On the question of whether there is any empirical evidence for the presumed existence of the indifference curves which economists typically posit for each individual (see, for example, Deaton and Muellbauer, ch. 2), Dasgupta and Hahn are silent. They merely say that "the empirical work on consumer demand for various categories of goods is. . .enormous." This non sequitur is preceded by the argument, equally true and equally irrelevant, that economists now base their arguments about consumer demand on ordinal rather than cardinal utility.

On the question of whether there is any empirical evidence for the presumed existence of isoquants, Dasgupta and Hahn respond by pointing out that, faced with an increase in the relative price of energy, economic agents have in recent years adopted more energy efficient techniques. This evidence, however, is not sufficient to demonstrate that production is

governed by isoquants. A set of isoquants, such as those economists typically rely upon to explain the choice of technique, assume that it is possible to vary the proportions of the inputs used in the production process within the constraints of the existing technology and that therefore the choice of technique can be explained independently of the technology. The argument implies that, just as economic agents switched to more energy efficient techniques when the relative price of energy rose during the 1970s, so they will return to the older, less energy efficient techniques now that the relative price of energy is declining. Thus the evidence, based on casual empiricism, is not yet in. It remains to be seen whether, as Dasgupta and Hahn seem to believe, the adoption of more energy efficient techniques during the 1970s represented a movement along some isoquant, with technology serving as an independent parameter, or whether it reflected a process of technical advance unrelated to any putative set of isoquants. As for the "enormous empirical literature" which Dasgupta and Hahn claim supports their argument on this point, it is surely a tip-off that the one volume of studies they cite includes no reference to isoquants in its index.³ Indeed, the omission is not surprising since, to obtain meaningful results, the studies included in the volume have had to abandon the implicit assumption of isoquants that the choice of technique is independent of the evolving technology.

On the question of whether there is any empirical evidence for the presumed existence of positively sloped supply curves

for industrial goods, Dasgupta and Hahn are again silent. Instead they concede that the supply curve for labor may be negatively sloped. This response is doubly disingenuous. First, the theoretical construct being questioned is not the supply curve for labor but rather the supply curve for the types of goods produced outside the agricultural sector. Second, the issue is not whether such a curve is positively or negatively sloped but rather whether such a curve in fact exists.

On the question of whether there is any empirical evidence for the presumed existence of a marginal physical product of capital curve at the firm or industry level, Dasgupta and Hahn respond by denying that the dominant paradigm in economics depends on a somewhat different theoretical construct, namely, "marginal physical product of (aggregate) capital curves." Whether the marginal physical product of capital curve which economists normally posit at the firm or industry level necessarily implies an aggregate version of the same curve is a subsidiary question, one which should not be allowed to divert attention from the basic issue. The fact remains that Dasgupta and Hahn are able to cite no empirical evidence for the presumed existence of a marginal physical product of capital curve--even at the micro level.

It should be pointed out that only one of the four key theoretical constructs which underlie the prevailing paradigm in economics need be shown to lack empirical validity for the case to be made for radically altering or perhaps abandoning altogether that theoretical approach--just as the inability to

establish any empirical basis for phlogiston required a radical restructuring of chemical theory at the end of the 18th century and the inability to establish an empirical basis for ether required a radical restructuring of physical theory at the beginning of the 20th century. Based on the response by Dasgupta and Hahn, it would appear that not just one but perhaps as many as four of the key theoretical constructs which underlie the dominant paradigm in economics cannot be empirically validated. At the very least Dasgupta and Hahn have failed to controvert the argument that these four theoretical constructs lack any basis in the observable reality of economic activity.

One cannot be sure, of course, that Dasgupta and Hahn accept the underlying premise of the original article, namely, that the body of theory on which a scientific discipline rests must be able to meet certain empirical tests. They simply say, ". . . it is not at all clear what would be meant by a claim that it [i.e., economics] is not [a science]. More to the point, it would have no bearing either way on Eichner's thesis. . . ." The suspicion that Dasgupta and Hahn do not accept the underlying premise of my article is reinforced by the type of work that has enabled Hahn to become one of the leading economic theorists in the world today--a mode of analysis, based on axiomatic reasoning, that makes no concession to the empirical relevance of the argument.⁴ It is precisely the suspicion that Hahn, like most of the other present arbiters of what is a permissible argument in economics, does not accept

the need for empirical validation that accounts for my turning to the pages of Nature to air the issue. As long as the leading figures in economics do not accept this basic premise of science, it is unlikely that, as pointed out in the original article, the discipline will be able to achieve any significant progress in understanding economic phenomena. Moreover, those who would attempt to take a more scientific approach to economics will continue to be thwarted by the influence within the discipline of those who, like Hahn, are committed to a quite different epistemology.

Dasgupta and Hahn give away the game when, in questioning the decision of Nature to publish the article, they say, ". . . ordinarily we would not respond to such an article as Eichner's." What the response by Dasgupta and Hahn confirms is that only the larger community of scientists can force economists to abandon the present set of rules by which they judge an argument and instead adopt the norms of science.

References

1. Eichner, A.S., Nature, 313, 427-428 (1985)
2. Dasgupta, P. & Hahn, F., Ibid., 317, 589-590 (1985)
3. Berndt, E. R. & Field, B.C. Modeling and Measuring Natural Resource Substitution (MIT Press, Cambridge, Massachusetts, 1981).
4. Hahn, F.
5. Deaton, A. & Muellbauer, J. Economics and Consumer Behavior (Cambridge University Press, 1980).