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**ECONOMICS: CORE AND RAYS ...**  
**... AND THE INFLUENCE OF EUROPEAN INTEGRATION**

by

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## ECONOMICS: CORE AND RAYS ...

### ... AND THE INFLUENCE OF EUROPEAN INTEGRATION

The success of economics as a science is evaluated in two strikingly different ways: Many scholars are fond of calling economics the 'queen of the social sciences'. At least three reasons can be advanced to substantiate this claim:

- (i) The economic approach has been taken over and is prominent in the other social sciences. In political science it is known as 'Public Choice Approach', in sociology as 'Rational Choice Approach', in Law as 'Law and Economics', in international relations as 'International Political Economy', in criminology as the 'Economic Approach to Crime', in history as 'New Economic History', or 'Cliometrics' (see, e.g., Becker 1976, McKenzie and Tullock 1975, Frey 1992).
- (ii) Economics plays a large role in society, especially via economic policy.
- (iii) Last but not least, economics is the only social science whose stars are crowned with the Nobel Prize.

However, some sceptic economists and most scholars from other social science fields hold a much bleaker picture of economics:

There are large areas in the social sciences pursuing a quite different approach from economics (e.g., discursive theory, structural theory, or the many variants of systems theory), or worse still, are not even aware of the rational choice approach.

Specific proofs of the influence of present day economics on society are required. Actually not even economists are able to come up with much hard evidence (see Faulhaber and Baumol 1988).

And finally, the Nobel Prize is not wholly due to economics being superior to any other social science but that it has an effective lobby in the form of the Swedish Central Bank.

## 2. *Specialized Rays*

Economic research is split into a great number of specialized sub-fields which emanate from the core. These rays are characterized by three major aspects:

Firstly, the output produced is self-defined by the international economics community and is measured in terms of scientific publications and citations in professional journals. Articles in scientific reviews do not mainly serve to propagate knowledge but act as a selection device for academic economists. Ray-economics is thus inward oriented. The topics and questions dealt with are theory-driven (Mayer 1993), and the task is to (marginally) improve on existing formal models which in turn are based on previous formal models. What matters is technical rigour and formal elegance. 'It is a fact of life that trained economists find it very difficult to see the obvious unless it has been encapsulated in a clear formal model' (Krugman 1995, p.43). The presentation of the results is highly regulated (e.g., Holub 1990, 1992). Content is only relevant as far as it gives a reason to apply a certain technique of analysis. Barbara Bergman's (1989) article rightly asks the questions 'Why Do Economists Know so Little about the Economy?', and Franklin Fisher (1989, p. 123) bluntly writes: 'There is a strong tendency for even the best practitioners to concentrate on the analytically interesting questions rather than on the ones that really matter ... The result is often a perfectly fascinating piece of analysis. But so long as that tendency continues, those analyses will remain merely games economists play'. Similar statements are made by Kolm (1988), Colander (1991) and Mayer (1993). The same holds for institutional knowledge. According to three well known business scholars: 'Less and less concerned with empiricism, economics became increasingly concerned with working out the internal logic of its theoretical structure and less concerned with discussing real institutions' (Rumelt, Schendal and Teace 1991, p. 17). Content and institutions are disregarded because they are irrelevant for the self-defined quality standards. The quality of a professional contribution can only be evaluated with respect to internationally valid aspects. Formal rigour and elegance perfectly meet this requirement: the quality of the proof of a theorem can be judged by other scholars irrespective of whether they are in Bonn, Madison or Hongkong. In contrast, academic contributions based on an extensive knowledge of local conditions and institutions cannot be judged by an external scholar. As a result, scholars who endeavour to participate in the

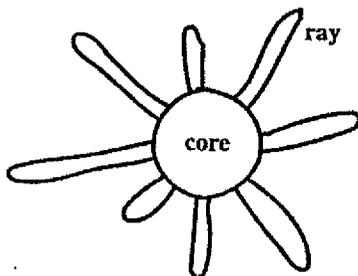
prestigious and career enhancing international market for economists refrain from doing that kind of work as it is not acceptable by the respective community of economists. Only those who do not aspire beyond the local market for economists can afford to work on topics with an emphasis on local data and institutions.

Originality and innovation are also muted in ray economics. Such thinking is acceptable only within the strict limits set by orthodox formal theory, and refers therefore at best to new types of techniques rather than to content. This is more a consequence of the use of two (or even more) independent referees which is now common with good professional journals. It is almost impossible to find two scholars who are sympathetic to a new idea at the same time. At least one of them would most likely cling to well-established orthodoxy. The chances for young economists - from whom one may expect more new ideas - are even slimmer. It has been empirically established (Hamermesh 1994) that unknown contributors tend to get unknown referees while established scholars are provided with well-known referees. The unknown referees are to a large extent graduate students and assistant professors in the editor's own university who for career reasons must demonstrate that they are well versed according to the established standards of advanced (ray) economics. They will therefore be reluctant to favour new ideas because these are, almost by necessity, less rigorous and formally elegant than small variations of an accepted model. Thus we totally agree with Kenneth Arrow who says (1995, p. vii) 'I think the publication selection procedure at the major journals has become methodologically more conservative, more given to preferring small wrinkles in existing analyses to genuinely new ideas'. The same bias against novelty holds for research grants. According to Friedman (1994, p. 199) 'Funding [by the National Science Foundation] has stifled innovation. 'Peer reviews' favour established scientists and directions of research'.

Secondly, rays are highly specialized. An extreme form of division of labour is used to raise productivity and output. The rays are still connected to the core as the respective assumptions (e.g. utility maximization) are followed but the abstract pursuit of a special topic takes prominence. The weaker the links to the core are, the more highly developed a ray is. Connections to other rays rarely exist, and over time rays typically become more, and not less isolated. An example (according to Drèze 1995, p. 119-120) are the theories of

### 3. How Core and Rays are Related

A figure may illustrate how the rays are attached to the core of economics



*Figure 1: The core-ray conception of economics*

The figure reveals that there are many specializations (rays) at the same time. They originate from the core but some are more broadly, and others only thinly attached, i.e., they are more self-reliant and self-referring. They are of different heights, i.e., in a different phase of development. The rays are only related through the common core, i.e., a typical ray-economist knows next to nothing about another ray, and does so without much damage to his or her career.

## II. Conjectures about the State of Economics

The discussion of the core and the rays leads us to four conjectures:

- (1) *Rays are the more important within economics the more intensive international competition among economists is.*

In so far as the research output of economists has to be evaluated across nations, there are few members who are able to evaluate the facts and institutional background. Quality can only be judged by resorting to established, self-defined standards of rigour and formality, and hence the research performed in a ray.

(2) *What are considered 'good' economics departments are ray focused.*

The qualification 'good' refers to the standards reigning in the international market for economists. As a result, 'good' departments are populated by scholars who produce abstract, formal and theory-driven work. Such departments can be looked at as applied mathematics oriented towards solving self-set problems. 'The economics scholar works for the only coin worth having - our own applause' (Samuelson 1962, p. 18). They do not endeavour to contribute insights into those real life issues which are among the major concerns of the citizens, such as unemployment or the destruction of the environment, nor do they offer advice to policy makers.

(3) *The economics core remains important where it is not subject to international competition.*

This holds under the condition that (a) economics departments can muster protection against international competition and (b) economics is located outside economics departments.

There are various ways in which economics departments can protect themselves from the international competition of economists for jobs:

- (i) Language. English has become the lingua franca in economics (as was Latin in the middle-ages), so that protection arguments mainly apply to teaching and less to research.
- (ii) Legal barriers, e.g., that professors are public servants, and public servants must be nationals.
- (iii) Institutional barriers, e.g., problems caused by the non-transferability of old age pension rights.
- (iv) Rent seeking barriers, by which academics try to prevent other economists from entering their national or even local market and competing for 'their' jobs.

These barriers to international competition impose cost. Such departments have, on average, less able and less active scholars but only to the extent that they are extrinsically motivated.

Silberstone (1997, p. 7), a former long-time Secretary-General of the Royal Economic Society, echoed this statement when writing about 'extra-mural economics': 'I have always felt that what is needed most is to bring the economists' method of thought to bear on the problems to be tackled. I also have felt that most of the technical economics which is called upon is that which is taught in the first year at university.'

### III. More Optimistic Views

The position here taken about core and ray economics is certainly debatable, and unlikely to be very popular in the community of ray-economists in which we normally act, and to which most readers of this paper belong to. We therefore wish to explicitly deal with views that differ from our position.

#### *1. Core and Rays will be Integrated*

The future course of economics may be seen in a completely different perspective. If sufficient time is allowed for, the various rays will be connected with each other or even melt together. The core of economics is continually moved outwards and is gradually better equipped to understand the real world.

The suggestion of a continually increasing core following the rays must be taken seriously. Does a graduate of economics not know much more today than a generation ago, and did that generation not know more than the preceding one? This is an almost philosophical question. What is certainly true is that today's economists know more and better techniques - but at the same time it must be conceded that they know less history and institutional facts. Whether they are better equipped to understand and integrate reality, and to make sensible policy proposals, is an open question.

We are sceptical whether the extension of the core will happen in a harmonious way. At least it is obvious that it takes much time - too much with respect to the pressing problems of our generation (e.g., unemployment or old age pensions). Thus, it is more preferable to

have contributions based on the existing core, rather than to perhaps vainly hope that a much superior solution will be possible on the basis of future knowledge.

We, moreover, doubt that the various rays will really be connected with each other in the future. Normative appeals and wishful thinking have little or no effect. In their official speeches, the presidents of the American Economic Association regularly urge their co-economists to do more reality oriented and integrative work. The majority of younger economists listen politely, but with their career in mind return home and expend as much effort as before to excel in ray economics. This is fully rational. To try to bridge the gap between two rays is extremely risky. The crucial-point is that the evaluation of the quality of that research is undertaken by 'good' scholars (according to the standards in economics). That means that the referees of journals or other scientific achievements (e.g., referring to decisions about grants) are located somewhere on or near the tip of a ray (see Hamermesh 1994). Being highly specialized, they typically state that they value the integrative efforts of the scholar concerned, but that the contribution is by far not as good as in their respective ray. They *generally* favour the work but confess that they are unable to judge it from a general perspective, and further add that from their own scientific point of view it is not up to the standards.

To successfully bridge the gap between rays depends on two rare conditions. One is that one tries to establish a new ray but this requires the right time and extraordinary capacities. A second possibility is to first accumulate reputation by working in one particular ray, and then to try to bridge rays only later. Examples would be George Akerlof who worked in growth theory and then switched to psychological economics, or William Baumol and Alan Peacock who started cultural economics. However, even scholars of that calibre find it exceedingly difficult to be successful with that strategy as the history of rejected articles (Gans and Shepard 1994) shows. Both strategies, even if they were successful in the long run, require considerable time - and time is a costly resource in an environment of ray-economics where quick publication and citation results are required.

To undertake an integrative strategy is even more risky when a bridge to another discipline is to be established. To exploit economic orthodoxy to the fullest is good advice given to young economists embarking on an academic career. This strategy is beneficial to economics

The need to evaluate the research of economists in the international market also systematically distorts the kind of data used. The safest way to proceed is to use the data established scholars have used before for the same kind of technical (econometric) exercise. Another acceptable way to proceed is to simply use official statistics. In both cases the international referees can concentrate on the theoretical and empirical techniques employed. This means, however, that economic analysis is undertaken on the basis of a consensual statistical 'reality' which is rarely challenged.

Data generated on the basis of official statistics, e.g., by constructing indices, is already tricky in the international market because the referees find it costly to evaluate such rather nit-picky transformations. To collect data oneself does not only cost much time and effort (and is therefore not a good choice for young scholars who have to publish quickly) but it is also extremely difficult to evaluate by a referee not intimately connected with the respective economy and period. This is a clear disadvantage in the international market. Moreover, the collector of data has possibilities to 'massage' the data by, e.g., leaving out outliers (without explicitly saying so) or even to falsify data. Because of such uncertainties, international referees much prefer to evaluate the analytical and econometric techniques used in dealing with well-established data because he or she feels competent to do so, and does not require specific institutional and historical knowledge. Hence, there are few incentives especially for young researchers to collect new data, and the data that has been newly collected is not subjected to a similar degree of critical analysis as are the formal aspects of economics. As a result, rather bad data may survive for a considerable time, and the econometric techniques are used to explain a chimera.

The rise of experimental economics (see, e.g., Kagel and Roth 1995) may be thought to present clear contrary evidence against our proposition. After all, experiments are undertaken to produce new data under controlled conditions. Here is indeed a weak spot in this movement which so far has mainly been discussed in the natural sciences, but very little in experimental economics. In principle, the results of an experiment can be made up, or at least massaged by, e.g., excluding experimental runs with awkward results. Our contention is not at all that this happens to any large degree or even that it has ever happened in experimental economics, but only that a referee has hardly the possibility to really check. In

view of this difficulty, the international economics community has responded in various ways: (i) the set-up of the experiments must be exactly described in publications in order to facilitate replication; (ii) the experimenters have established a rather closely-knit network of personal contacts in order to informally monitor each other and to establish reputations; (iii) standard experiments have received great prominence (the Prisoner's Dilemma Game, and more recently the Ultimatum Game) which eases the burden of evaluation. It is easier to compare a new experiment to an already existing set of standard experiments.

The last two responses are the prerequisites for a ray, which indeed experimental economics is today. The scholars in this ray mainly or even exclusively relate and quote each other, they engage in marginal adjustments within the cannon of experiments deemed acceptable by them, and they deal to a large degree with self-defined technical and theoretical problems while the content increasingly loses importance.

#### *4. Surveys Bridge the Gap*

Could it not be argued that the economics community has responded to the gaps existing between rays by commissioning evaluative surveys of existing knowledge?

There are indeed *some* surveys that try to link the developments of various, or at least two rays. However, most surveys have exactly the opposite function, namely to highlight, establish and advertise a given ray in the general economics community. Not rarely, such surveys seek to pull together the various threads *within* a ray, and do not endeavour to transgress the ray they survey. Rarely does a survey seriously integrate knowledge from the other social sciences. But what about *surveys* that are commissioned to deal with a policy issue such as unemployment? One would think that the authors are *forced* to go beyond the abstract and technically-oriented model building and must seriously deal with the question of what economics as a social science is able to contribute. We contend that this is not normally the case because the writers of surveys are subject to the need for evaluation by referees who look at rigour and formal elegance but are not really interested in improving economic policy.

disciplines mentioned above will increasingly value technique over content depends on the extent of international competition of the respective markets for scholars.

## *2. Will there be Corrections?*

The present and future development of economics as here portrayed, might be expected to lead to corrective reactions by those most negatively affected. One group is 'the public' which no longer derives much visible benefits from the economics departments. The general population can best be considered to be a latent group whose members have little or no incentive to complain as the outcome is a public good. The government and organized groups do not really depend on economics departments as they can turn to economists in other faculties as well as to other social sciences. Hence, no reaction from the public is likely to be forthcoming.

A group which is potentially much more strongly affected are the (future) students of economics who, when educated in ray economics even at the undergraduate level, will find it difficult to find a job (see Kruger et al. 1991 for the United States, Towse and Blaug 1990 for Great Britain). But this group is also unlikely to change the course: Firstly, potential future economics students (i.e. today's youngsters in schools), do not have an incentive, nor the insights or influence, to become active. Secondly, the job situation is not hopeless as - at least outside North America - the existing stock of professors can still be filled up with economists trained in rays. It is a well-known psychological bias already extensively commented on by Adam Smith, and empirically well supported (Weinstein 1980) that prospective entrants into an occupation or job systematically overrate the probability of being successful. So even if there are relatively few professional jobs to be filled in the future, any particular potential economics graduate who is believed to be among the chosen few, would see little reason to redress economics teaching to the study of real world issues. Those young people who enter economics with the expectation to be trained in analyzing pressing real world problems have no choice. They have to follow the curriculum and have to pass the required exams. They may believe that once they have passed the educational mill, they will devote themselves to the real issues. However, once they have reached that stage, at least at leading universities, they have accumulated so much ray economics that their relative advantage clearly lies in pursuing further this path.

This leaves a third group which might be concerned about the sketched future development of economics, the scholars having a job in an economics department. As everywhere, change will be resisted, which is strengthened by the fact that most professors have tenure so that they are isolated to a large extent from market developments (see Alchian 1977). Those educated in the tradition that rigour and formal elegance mainly matter, have little reason to redress the balance because they would be robbed of a significant share of the human capital they accumulated with much effort. Only professors who have either had a broader education or who are so superior that they have acquired a broader knowledge of economics and the social sciences will want to seriously put into question the course of their own departments. They are joined by university administrators who are forced to compare the future development of various departments. Both these unorthodox professors and university administrators cannot fail to see some signs speaking against ray economics. One is the falling share of economics students compared, e.g., to management (business) and law, as well as the difficulty in finding satisfactory and well paid jobs outside academia. Whether these two groups are able to change the course of events depends strongly on institutional conditions. Private universities which depend on satisfying students' preferences are more likely to redress the balance in favour of core economics which means that the ray oriented departments of economics will shrink. State universities, especially of the European type, depend less directly on future job opportunities of students, and have a stronger tenure security for professors, so that less rapid change is likely to occur. As a larger share of American universities are private (especially the top ones) this would mean that the departments of economics will shrink more quickly in North America than in Europe.

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