

TRIBUTE TO LUIGI SOLARI

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As most of you know, our friend and colleague Luigi Solari died unexpectedly less than a year ago. He was forty-five years old. It happened near Paris when he was returning to Geneva on 12 November 1977 shortly after giving a lecture there. As professor of econometrics at the University of Geneva, founder and director of its Department of Econometrics, he was the original chairman of the program committee for this conference. Before we begin our scientific work I should like to say a few words in his memory.

Luigi Francesco Felice Solari was born on 28 August 1932 in Lugano. He went to school there and then attended the universities of Munich, Geneva and Paris where he read economics and statistics, learning his econometrics in Paris from René Roy and Edmond Malinvaud. He obtained his first degree in economics from Geneva in 1954 and a doctorate from that university in 1963. In the intervening period he received various certificates and diplomas in statistics from the University of Paris to which he remained attached throughout his life.

In 1958, five years before he received his doctorate, Solari was put in charge of research at the Research Centre of the Faculty of Economic and Social Sciences at Geneva. Shortly after receiving his doctorate he was appointed extraordinary professor of econometrics, the first chair in the subject in Switzerland, and in February 1965 he was promoted to an ordinary professorship. In 1966 he founded an Econometric Centre at the university and became its director, a post which he continued to hold when it became a department of the faculty in 1968. In this capacity he trained a number of able econometricians, including several who stayed on as his colleagues at the department. Thanks to him Geneva has acquired a wide reputation for econometrics and is now one of the most active centers in our field. Its development has taken place in an international atmosphere since Solari made a point of meeting many of the distinguished academics who for one reason or another gather in Geneva and usually persuaded them to talk at his seminar. As a consequence the centre has close connections not only with France, Italy and Canada, which he knew well, but also with Britain, Soviet Russia and elsewhere.

In 1968 Solari became vice-dean and in 1971 dean of the faculty at Geneva, thus adding administration to his other duties. During his last ten years he devoted a great deal of energy to university reform, seeking to adapt his university to his conception of the tasks and responsibilities of the times. This was a controversial undertaking which answered to the fiery side of his character and made him enemies as well as friends.

Geneva was not the only scene of Solari's academic activities. Apart from short-term assignments as visiting professor at the School for Advanced Commercial Studies in Montreal and at the Université Laval in Quebec, he held an extraordinary professorship of statistics and econometrics at the University of Lausanne since 1964 and, after undertaking postgraduate teaching at the University of Paris IX-Dauphine from 1970, was appointed associate professor there in 1974.

As a teacher and researcher Solari was characterized by his broad interests, his great knowledge, which he was always seeking to extend, and his inspiring personal example. If he expected much from others it was clear that he expected much from himself. He had a passion for economics and for making it a reliable, practical tool. He wanted his students and assistants to see his vision, discuss it with him and help in the task of improving and advancing it. But he distinguished between value judgments and logical argument and did not try to overpersuade those who saw economics differently. He took a democratic attitude in such matters and I think he was right to do so.

Solari's breadth of interest and his conception of economics are reflected in his writings. Beginning in 1956, his scientific works, written alone or jointly with others, number forty-six. His breadth of interest is shown by the range of subjects they cover: economic methodology, econometric models, production theory, systems of demand equations, regional economics and demography. His conception of economics, his persistent striving after a clarification of fundamentals, can be seen from his three main works which appeared in 1962, 1971 and 1977 and which alone I shall attempt to comment on here.

The first of these, which was in fact his doctoral thesis, was entitled *Modèles et décisions économiques: sur les fondements de l'économie pure*. It is largely concerned with the structure and classification of models, the nature of decisions and the methods of analyzing them. It makes use of the tools of modern mathematics, set theory, topology, abstract spaces and so on, and is written in the spirit of much contemporary mathematical economics, being concerned with the precise conditions under which familiar statements can be considered correct. Some economists are impatient of this way of treating their subject

but there can be no doubt that we ought to be as clear as possible about such distinctions as those between endogenous and exogenous variables, deterministic and stochastic models or statics and dynamics. And when we consider how obscure much economic writing is and the oceans of ink that have been devoted to attempts at clarifying what distinguished economists of the past really had in mind, we can see the importance of treating fundamentals.

Solari's second book, *Théorie des choix et fonctions de consommation semi-agrégées: modèles statiques*, is a truly econometric work in that it covers estimation problems and applications as well as economic theory. It begins with the theory of demand by an individual household and goes on to aggregation problems. It then takes up two demand systems: the linear expenditure system and the indirect addilog system. In discussing the first, Solari points out that the committed expenditures (the elements of the vector c in the usual notation) need not all be positive, though negative values of supernumerary income (often written as $\mu - p'c$) are not admissible, and goes on to work out the consequences of this generalization. In discussing the second system he emphasises the concept of the hierarchy of goods, an idea which had always played an important part in René Roy's work on demand analysis.

After dealing with economic theory Solari turns to various methods of estimating the parameters of demand systems and of carrying out the calculations. He concludes with applications of the linear expenditure system to Britain, Denmark, France, Italy and its major regions, Norway and Switzerland and of the indirect addilog system to Switzerland alone.

In my introduction to that book I expressed the hope that Solari would turn his attention to the development of dynamic versions of these models as I had tried to do a decade earlier. Although he had this problem in mind in his later years I am not aware that he did much work on it. Instead he became greatly interested in another branch of demand analysis namely the study of what is sometimes referred to as the total or, as Solari termed it, 'enlarged' consumption of the population, which includes not only the goods and services bought by households but also such items as education, health services and so on which are provided for them by public authorities. As president of l'Association scientifique européenne d'économie appliquée (usually known as ASEPELT on account of its original title) he organized in Geneva at the end of 1974 a conference on consumption covering both private consumption and the analysis and modeling of enlarged consumption. Contributions from writers in both Eastern and Western Europe were published in a volume edited by Solari and J.-N. du Pasquier entitled *Private*

and *Enlarged Consumption*, ASEPELT series, vol. V, North-Holland, Amsterdam, 1976.

In his last major work, *De l'économie qualitative à l'économie quantitative: pour une méthodologie de l'approche formalisée en science économique*, Solari returned to general theoretical issues. It is based on his lectures, which were turned into a book at the instigation of and with the collaboration of his colleague Edouard Rossier. As I see it, the general theme can be stated as follows. Our aim is to understand the world we live in as exactly as possible and this requires quantitative knowledge, such as the numerical values of demand or supply elasticities or of the dynamic multipliers of the system. But to obtain this quantitative knowledge we need an organizing framework and organizing principles and these are essentially qualitative, that is theoretical. Theory is therefore necessary to attain our aim but it is not sufficient. The acquisition of suitable data, and the elaboration of suitable methods for estimating parameters and for testing both the parameters and the theories in which they appear, give rise to separate problems. And so, in relation to our aim, a theory is incomplete unless these problems are also solved and applications of the theory are carried out. With this in mind, Solari discusses such issues as: the concept and identification of a structure; comparative statics; dynamics; and the treatment of optimality in production, in consumption and in the economy as a whole. The final chapter is devoted to estimation problems in economic models.

In addition to his main activities Solari played a role, often an active role, in a number of learned societies. I have mentioned his part in organizing the present conference for the Econometric Society and his work for ASEPELT, whose president he was since 1971, in organizing their conference on private and enlarged consumption. In 1974 he was elected a member of the International Statistical Institute and from 1972 to 1975 he was president of the Swiss Society for Statistics and Political Economy.

It is a matter of great surprise and regret to me that Solari never became a fellow of our Society. When I consider all he did for econometrics, both through his writings and through his establishment of the centre at the University of Geneva, I can only think that there must be something defective in our methods of election. It is not that he was never proposed: I proposed him myself in 1970 and eventually his name was put forward by the nominating committee. But there the matter ended.

Solari's work was recognized by the French government in the last year of his life through the award of the title of

Chevalier dans l'Ordre des Palmes académiques.

Let me end on a personal note. Luigi Solari and I first met at the beginning of 1968 at a time when he was working on the linear expenditure system. At first we had language difficulties, his English in those days being if anything worse than my French. However, we persevered and, as I have been a frequent visitor to Geneva for many years, we met often. As we were both busy, these meetings were usually hurried and I hoped that at some point we should be able to meet in more relaxed circumstances in Cambridge but his innumerable commitments never allowed this to happen. He had hoped to take part in the Econometric Congress at Cambridge in 1970 and it was a great disappointment to me to receive his last-minute telegram announcing that he could not come.

I remember Luigi as a man full of latent fires, who threw himself wholeheartedly into everything he did whether it was delivering a lecture or arranging a party. He was highly amusing, fond of the good things of life and extremely generous. These characteristics made him an excellent host and when, in 1971, I had the good fortune to receive an honorary degree from the University of Geneva, Luigi's conception of the proper way to celebrate such an occasion added a new dimension to the usual organization of academic festivities: after the degree ceremony my wife and I and about forty or fifty of his friends and colleagues were taken across the lake in an elegant motor yacht to a sumptuous and leisurely meal in a medieval French château and eventually returned to Geneva as we had come. It was a perfect culmination to the day.

I will leave you with this picture of a warm-hearted man, a passionate scholar and a good friend.