

Section III
QUANTITATIVE ECONOMICS

A new Economic Theory

It will be ^{noted} reached that Robbins' major criticism of the activities of the Quantitative Economists was ^{at} their claim concerning the possibility of formulating economic laws from quantitative data.

It would be interesting to examine the claims made by Wesley Claire Mitchell⁽¹⁶⁾ in 1925 with regard to the possibilities of the Quantitative method.

Mitchell made it clear that ~~of~~ Quantitative analysis was not intended to provide a statistical complement to pure theory as Marshall had hoped it would. This was due to several basic differences in the methods of Quantitative Economics and pure theory.

For instance, concepts and tools of pure theory as formulated by W.S. Jevons and A. Marshall were not amenable to quantitative analysis. To Marshall, money was the economists' instrument for measuring the force of motives involved in economic science. Jevons' theory was based on the calculus of pleasure and pain. Mitchell therefore declared that the measurement of the forces of motives, or of pleasure and pain, was not possible. These formulations Mitchell recognized as conceptual devices for obtaining insight into what happens in the real market where the money income and costs of living of millions of men were assumed

(16) Wesley C. Mitchell "Quantitative Analysis in Economic Theory".
American Economic Review, Volume 15, 1925.

fixed. The quantitative analyst however, would not need to work through a theoretical device but would derive his data directly from real markets. Quantitative theories Mitchell believed, would be about relationships among the variables measuring objective processes.

Another difference between quantitative and qualitative economics was the fact that the latter followed the logic of Newtonian mechanics, while the former rested on statistical conceptions. Any theorist, argued Mitchell, who works by ascribing motives to men and then argues what they will do under the guidance of those forces, produces a mechanical type of explanation.

Mitchell recognized, though belittled, the problems of variety, uncertainty and imperfect approximation in economics, with regard to the difficulties of attaching numerical values to the processes of the market. However he uses this very difficulty to enhance the prestige of Quantitative economics. This would indeed make the development of the statistical method more radical in economics rather than the physical sciences.

What Mitchell foreseen, was first the recasting of the old problems into new forms that would render them capable of statistical analysis. As a result of this reformulation would arise according to Mitchell a revolution in the content of economic theory. The Quantitative method promised to Mitchell a new Economic Theory.

Mitchell felt that it was not correct to say that the trend of economics into greater specialisation of labour needed to be remedied with a "thorough grounding of economic theory". Mitchell held this to be ~~a~~ wrong because theory plays so small a role in specialist work in public finance, banking, accounting, transportation, economic history, insurance, business cycles, marketing and labour problems.

Of course, in the light of the developments in economic theory since, Mitchell was not entirely correct. Economic theory today has indeed a lot to offer in the analysis of all these problems.

Thus, it is clear that Robbins' criticism was correctly directed towards such 'grandiose' claims, of forming a new economic theory from quantitative data.

However, one very prominent economist who disagreed with Robbins was R.F. Harrod.

Deductive and empirical methods compared

Writing in 1938, R.F. Harrod made it clear that he showed more faith in the potential of the quantitative, empirical method than Robbins did⁽¹⁷⁾. The purely deductive method had its drawbacks.

Economics is a science, but it is not a mature science. Economics not being a mature science, the use of the deductive method would come up against 2 problems. Firstly, the crucial

(17) R.F. Harrod: The Scope and Method of Economics. Economic Journal Volume 43; 1938 p.401

experiment or the experiment that could determine categorically a conclusion, which was of central importance in the more mature sciences like physics and genetics, had no role to play in Economics. Secondly, it is extremely difficult to test a hypothesis in Economics because of the numerous variables involved. Thus many hypothesis are formed which cannot be tested and in this way conflict of opinion is not settled.

Economic theory was devoid of predictory power until it took the aid of empirical studies "to fill in the blank form of equations with quantitative data".

There is a close correspondence between this idea and the fourth function of empirical studies as described by Robbins⁽¹⁸⁾.

However where Robbins and Harrod do not see eye to eye is the question of the permanent validity of economic laws derived from quantitative studies.

Harrod expressed doubt as to whether the empirical method was as sterile as had been claimed. One example of the success of the empirical method is Gresham's Law.

Harrod is willing to conceive the idea of what can only be described as quasi-generalisations of limited validity. Robbins did not think in these terms. Robbins felt that if a law was to be called scientific, it had to be stated in precise terms and had also to be of general validity.

(18) See p. 43 below.

Harrod says that it is possible to make a rough generalisation that in the course of the trade cycle, in the uprising of production, prices have a rising tendency, and in the downswing a falling tendency. This interesting generalisation may not have the universal validity of the law of Demand, but nevertheless it is significant that it was derived from observation. Such a generalisation could never have been derived from static theory where output is expected to rise when prices fall.

If mere observation could give such interesting generalisations, Harrod felt that the application of statistical techniques offered vastly more to economics.

Measurability of relations

It was Fritz Machlup⁽¹⁹⁾ who agreed wholeheartedly with Robbins on another aspect of his disagreement with the Quantitative economists. Machlup agreed with Robbins that the attempts of the 'Quantitatives' to measure relations, like cost and demand functions, are futile.

Machlup said:

I do not think much of the measurability of behaviour functions and other relations ... , furthermore, I doubt the consistency of such relations and therefore do not see how it would help much even if we could measure them. What is the point of laboriously calculating an elasticity of demand of last year if all is changed next year⁽²⁰⁾.

(19) Fritz Machlup, Essays on Economic Semantics, Prentice-Hall, N.J., 1963.

(20) Machlup Ibid p.125.

Machlup goes on to elaborate in clearer terms what Robbins originally meant. He says that it is necessary to make a distinction between a mental construction and an operational counterpart.

An operational definition described the operations used in determining or measuring an observed state or event. A theoretical model, on the other hand, contains an idealized ^{construction} construct which is imagined. The latter is not measurable while the former is.

However, to be measurable, a model should contain good operational counterparts as for example the three concepts of the measurement of National Income. Models of economic theory contain 2 types of constructions. Firstly, variables, like price, output, costs, quantities, demanded and so on. Secondly, relations between two or more variables like cost functions, demand functions and so on.

Machlup comes then to the essential point. While it is possible to formulate suitable operational counterparts of variables, this is illogical in the case of relations.

Hence Machlup's conclusion that he did not believe in the measurability of relations.