

Mathematical Nonsense Is Still Nonsense

By JULES GUEDALIA

Apparently in jealous contemplation of the lofty heights which the use of mathematical processes has attained in the domains of the physical sciences many attempts have been made to convert economic chaos into economic science by mathematical means. The latest effort of this kind is presented in a tract entitled "Business Cycles in the United States of America 1919-1932" by Professor J. Tinbergen of the Economic Intelligence Service of the League of Nations, and published in this country by the Columbia University Press (\$1.25).

Applying the statistical method of multiple correlation to the 1919-1932 period, Professor Tinbergen concludes (a) there is no support for any view according to which influences in the field of money are the chief factors in the business cycle; (b) the over-investment theory, i.e., a situation in which industries in the higher stages of production are over-developed relatively to those in the lower stages, is confirmed as an important causal factor in the business cycle; (c) the "acceleration" principle, i.e., that fluctuations in investment are chiefly governed by the rate of increase in consumers' goods production, is not of much importance; (d) that statistically, no evidence of any systematic lag or lead is found to exist in the production of capital goods relatively to consumers' goods; (e) that changing costs of production, sometimes stressed as a cause of crises, are of little importance; (f) that over-investment and under-consumption theories do not serve as a turning point explanation for the 1929 collapse; (g) that agricultural theories are of doubtful importance and that "harvest fluctuations work in a complicated way, partly positive, partly negative."

The generalizations arrived at by Professor Tinbergen are—1. "The depression is an inevitable consequence and a necessary readjustment of certain disproportionalities which have

previously developed. It is necessary, however, only in so far as (i) the economic structure is not changed and (ii) no exogenous shocks occur." 2. "There may occur an automatic revival from a depression." 3. "The position in any year, though depending in part on what happened before, may be considerably influenced by fresh shocks, and if such shocks are a systematic set of measures, it is certainly within the possibilities to prevent a boom from developing to dangerous heights."

In layman's language all this adds up to—1. If you go on a party you'll have a headache if (i) your head isn't cut off and if (ii) you don't take a bromo-seltzer and a cold shower; 2. If you get the headache you may recover by just waiting long enough; 3. The way you feel depends on what happened the night before, but if you pursue a systematic shock treatment such as at Bill Brown's Farm (planning) you can cure yourself of getting a headache every time you take a drink.

Thus has a mathematical mountain labored and brought forth—what? When will "economists" learn that mathematics is merely a procedural form of reasoning which from assumed premises derives the necessary conclusions? For example, mathematics shows that if certain axioms (Euclid's) are assumed it follows that the sum of the angles of a triangle equals 180 degrees. A different set of axioms would lead to some other result such as is the case in a spherical triangle. Thus mathematical conclusions are relative, not absolute, and depend upon the assumptions started with. Mathematics is not like a filter

which takes muddy water and cleanses it; it is like a concrete mixer taking cement, sand, gravel, water, (the premises) and delivering concrete (the conclusion). Hence economic chaos must be replaced by economic science first; then and then only may mathematical processes be applied. To apply mathematical methods to chaotic premises leads necessarily to chaotic conclusions.

Hence, when Professor Tinbergen applies mathematical processes to variables predicted upon a priori considerations "based on economic theory or common sense" we know immediately that it is the premises and not the conclusions that must be subjected to critical analysis. For example, he assumes that wages depend on (i) employment, (ii) cost of living, (iii) labor productivity, (iv) institutional factors, such as the changing strength of trade unions, legislation, etc. . . From these premises he derives an equation which in English means that fluctuations in wage rates with a lag of five months equals three-tenths of the volume of consumers' goods and services plus investment goods produced, plus thirty-nine hundredths of the cost of living, plus fifty-one hundredths of the elapsed time. Now does this have any real meaning? Does it convey any precise thought? Why not throw in a couple of sun spots a la Jevons? Why does the production of goods and services fluctuate? And on what does the cost of living depend? And so on ad infinitum!

The inevitable conclusion seems to be that Professor Tinbergen has added confusion to chaos and achieved chaotic confusion—a noisome brew of mathematically expressed nonsense. All of which brings on the thought that economics—the study of earning a living in society—seems to be reaching a stage where the "professors" and "experts" had better produce some results quickly, or else! Might it be that the ordinary citizen could do no worse?

