they show a spectacular boom; transportation equipment, electrical equipment, metal products, and metals, all increase output dramatically. However, during 1981, the curves suddenly level off, and, during 1982, fall off sharply. By the end of 1983, their output is below the level experienced before the rise in defense spending. Industrial sectors, on which these depend, will be so disrupted that necessary inputs will not be available.

This order of problem is anticipated by some Pentagon planners, who warn that a strict allocation system prioritizing shipments to the military might have a perverse effect on defense production by jeopardizing the health of the civilian sector.

It is clear from the above analysis that "Gross National Product" analyses of the type widely circulated by Data Resources, Inc., are meaningless with respect to this type of problem. Using Keynesian demand functions, DRI and other conventional econometric models are cranking out estimates for GNP, employment, and inflation under different assumptions concerning the volume of military spending. Such models are not capable of relating the redistribution of tangible output to the economy's capacity for future production.

The worst case of such thinking appeared in the *Wall Street Journal* Jan. 28 under the byline of University of Michigan professor Paul McCracken, former chairman of President Nixon's Council of Economic Advisors. McCracken argued that between 1958 and 1968, while the nation spent a considerably higher portion of GNP than presently on defense, overall inflation and unemployment were much lower than during the late 1970s, when the proportion of GNP spent on defense fell sharply. Post hoc ergo propter hoc, Prof. McCracken argues that the United States can afford to increase defense spending by 17 percent per year through 1985, at which point 8.6 percent of GNP would again go to defense.

What the Republican economist does not mention is the composition of GNP in tangible terms. In 1958 half of the nation's workforce was employed in tangible-goods production. Now, only one-third is. Life insurance companies, shopping malls, and gambling casinos may add to GNP, but they are no use whatever in producing military hardware. Fundamentally incompetent measures of economic activity such as GNP can lead, fairly directly, to fundamentally incompetent policy decisions on the most important questions of policy.

## The origin of the Riemannian model

The Riemannian economic model was developed by a team of specialists under the direction of contributing editor Lyndon LaRouche. The model's computer application was announced on April 25, 1979, after a trial run successfully proved the model's unique predictive power.

That first major test of model capabilities involved statistical data from the 1968-73 period. The computer, on the basis of that data, was asked to predict what would occur over the 1974-78 period under conditions of a 400 percent increase in the price of oil. The "LaRouche model" was able to produce charts and diagrams describing the behavior of various economic parameters. The results were virtually identical with what occurred in fact during the 1974-78 period.

In principle, the LaRouche model has existed since the mid-1950s. From that period, LaRouche has been associated with a *causal method* of analysis which proceeds from the economy as a whole as the primary datum. LaRouche developed his approach with to solve the two major deficiencies of all presently employed national and world economic models.

First, no distinction, is made by other models between productive and nonproductive economic activity, where by productive, LaRouche's model defines a useful material alteration of nature resulting in tangible wealth.

Secondly, other models take inadequate or no account of qualitative changes in the technological base of the economy. The reason for this lack is that, since technology introduces "discontinuities" to the economic process, continuous models cannot accommodate technological changes.

LaRouche's model is "Riemannian" in precisely that sense. In Bernhard Riemann's 19th century discovery and description of the phenomenon of shock waves, he gave a specific example of the evolution of a physical "manifold" toward a point of discontinuity, with subsequent qualitative reordering of the manifold, retaining its integrity as a new type of physical entity. In LaRouche's model, technological change is seen to have economic shock-wave character in that general sense.