government spending. We do not worry whether this was capital formation in baseball stadiums or machine tools. We will assume that each $1 of next year's GNP will contain 50¢ of personal consumption, 25¢ of capital spending, and 25¢ of government spending." There is no reason whatsoever why any forecast based on such criteria should turn out correctly.

The second problem is the standard input-output grid. This tells us how much steel output goes to auto, and how much auto output (e.g. forklift trucks) goes to steel, and so on for scores of industries. The "coefficients" which show, on the big grid, how much of the others' products each industry consumes are very useful for telling us what happened in the past. They tell us very little about what will happen in the future. For example, during October 1979 to March 1980, the share of production to consumer durables dropped by 15 percent, while the share of production to capital goods rose by 6 percent. This was a drastic shift in the input-output grid. Merely having such a grid tells us nothing about how fast, and with what impact on productivity, it may change. All the conventional models assume either fixed or very slowly changing coefficients.

So, when the conventional models saw that first-quarter 1980 GNP had not fallen, and that industrial production as a whole had not fallen, they assumed things would be stable for some time to come.

The political dimension

Flow charts 6 and 7 illustrate why the conventional models fail on two major grounds, and why *EIR*'s model is at least as good as the quality of the political intelligence that is used to program it.

At bottom, we do not claim the sort of miracles for our computer in forecasting future economic developments that many of the other forecasting services did, before events found them out. We can state authoritatively that our model accurately describes the functioning of the economy in physical terms, in a way that other econometric models do not even try to do. We believe that without this physical-systems approach as a starting point, no useful results can be obtained. The LaRouche-Riemann model, as we showed *EIR* subscribers in the case of India, is unparalleled for planning applications.

In the case of forecasting, *EIR* relies on a broad network of information and an economic-political analysis team that has been working together for six years to make reliable political forecasts. In the short run, at least, political decisions can have tremendous sway over the physical processes of the economy. Therefore, our political track record is as important to subscribers who require sound economic forecasts as the quality of our model itself.

BOOK REVIEW

The wrong way to achieve high capital formation

Capital, Efficiency, and Growth, George M. von Furstenberg, editor. Cambridge, Massachusetts: Ballinger Publishing Company, 1980.

The American Council of Life Insurance has sponsored a series of volumes entitled *Capital Investment and Saving*, of which this is the third. Within the limits of conventional econometrics, contributors including Dale Jorgenson, the Harvard econometrician, state some unassailable truths and provide important and useful information. However, the conclusions as stated by the book's editor, University of Indiana professor George von Furstenberg, are wrongheaded and dangerous.

Furstenberg represents a reduction in consumption as the basic solution to America's longstanding economic problems. He is not alone in this view. Federal Reserve Chairman Paul Volcker, who has more to do with the present 13 percent annual rate of decline in personal income than any man alive, stated in hearings before the Senate Banking Committee last October that the American living standard had to fall. What is important about Furstenberg's conclusions is that they are supported by one of the most impressive arrays of econometric research recently assembled.

The terribly misguided nature of the conclusions compels us to set aside our enthusiasm for the quality of some of the research and zero in on the flaws which make these erroneous conclusions possible.

'Disquieting consumption'

"Over the period 1948-1976, the capital stock grew at an average annual rate of 3.68 percent per year for households, 2.80 percent for corporate business, and 1.42 percent for noncorporate business," Furstenburg summarizes the study's results. The formula devised for measuring the capital stock is, compared to *EIR*'s depreciation index (see Survey May 6), fairly generous, but that is a secondary point. Furstenberg continues:

"It is disquieting that household capital (primarily residences) has grown almost twice as rapidly as busi-

ness capital." He continues, "Before declaring a generalized capital shortage, one should also recognize that there is relatively too much capital in sectors with low efficiency," by which he means household "capital." This is an extraordinary piece of nonsense, on several grounds.

First, the question of whether there is a generalized capital shortage is a matter of determining what rates of investment are necessary to obtain the capital stock and labor pool the country will require in the future. Relative to investment requirements, we are currently investing $50 billion in constant 1972 dollars per year less than required to maintain our capital stock in the condition it enjoyed in 1965, as *EIR*'s own depreciation index, backed up by studies on the part of the Econ group in Princeton, demonstrates. Secondly, the economy's greatest shortage is in skilled labor, and the state of secondary, vocational, and advanced educational institutions promises a much worse shortage down the road.

Capital allocation

What is Furstenberg talking about? In the case of housing, to which he believes capital was overallocated, the pre-recession rate of homebuilding of 2 million units per year is less than replacement, even using the questionable 40-year depreciation usually applied to single-family homes.

What is more interesting is the lumping together of home investment and plant investment as "capital formation," standard procedure in demand economics (and also the so-called "supply-side" variants of demand economics). How does one measure the "productivity" of a home compared to the productivity of a steel mill? Ultimately, there is a means of doing so. Homes produce human beings.

All data for productivity and living standards show that these data move in tandem for all countries in all periods studied, for obvious reasons. Without oversimplifying too much, we can say that better homes produce human beings more likely to acquire the education and skills that will equip them for expertise in handling new technologies.

Furstenberg is saying, without the gumption to be entirely open about it, that the American economy should try to get away with permanently lower living standards, and hope that this does not adversely affect productivity. Since skilled labor is the biggest bottleneck in the productivity problem, even worse than the deterioration of our capital stock—as any industrial engineer will say with little prompting—the proposal is disastrously wrong.

Yet Furstenberg's volume probably represents the dominant viewpoint in the business community concerning this problem.

There is a big hole in the methodology of Barbara M. Fraumeni and Dale W. Jorgenson of Boston College and Harvard University, whose study, included in this volume, "The Role of Capital in U.S. Economic Growth, 1948-1976," is otherwise of great merit. They seek to establish the rate of technical improvement in the American economy over this period by attributing to technology whatever cannot be accounted for by increases in capital and labor inputs. By and large, their conclusions correspond to measures published earlier by *EIR*: that the rate of technical change was at a maximum from 1960 to 1966, the height of the NASA research and development program, and that it fell into the negative—due to deterioration of the capital stock—during 1973 to 1976.

However, Fraumeni and Jorgenson lump together among the "industries" studied, all the goods-producing sectors, the financial and other non-goods-producing services sectors, and "private households." Aggregating these elements jumbles up the causal nature of the workings of the economy, and permits certain wildly misguided conclusions to be drawn—as Furstenberg proceeds to do.

'Into a minefield'

The assumption built into the classical "Cobb-Douglas" production function and its variants, such as the one employed by Fraumeni and Jorgenson, is that output can be broken down as the product of "factors," and the factors can be measured by their relative share of income.

However, to equate income and its distribution to the actual, engineering side of the economy brings us into a minefield.

Income is either productive or non-productive, i.e., it causes future tangible wealth to be produced or it does not. The income of wholesale, retail, financial and similar services is nonproductive; what these sectors do may or may not have any relationship to the future growth of the economy. In the United States they have grown at the expense of the goods-producing sector of the economy.

Household income is productive insofar as it employs goods-producing workers; other household income is an overhead expense to the productive sector.

Secondly, what matters is not the size of total output, but how it is deployed for future production. What proportion of this output represents free energy in the form of tangible wealth available to expand the economy, above and beyond maintenance costs? The profits of a gambling casino, i.e., the "payments to the capital factor" in the gambling casino, represent nothing in terms of economic expansion; their existence

tends to be inflationary. The profits of a machine tool firm, in the form of a certain volume of machine tools above and beyond the number of units required to pay the labor and depreciation costs of the firm, represent a margin of actual expansion.

Fraumeni and Jorgenson ignore those questions. Although their basic point concerning technical change is of great value, the impressive statistical battery they assemble tells us no more than we knew at the start about what rates of increase in capital, labor, or technical change are *necessary* to end inflation, restore the capital stock to previous health, produce the skilled labor we will need in the future, get high-technology solutions to the energy crisis on line, or other basic questions.

In their analysis there is no causal relationship between the "factors," only values "imputed" after the fact from income schedules. Furstenberg uses this absence of causal features in their model to propose a shift in capitalization from homes to industry, not inquiring whether this will disrupt the causal basis of productivity in the first place.

Free energy

As the authors are only too well aware, the basic difficulty in taking the measure of technological change as the residue after capital and labor are accounted for is that any change in technology changes the valuation of all other factors. New equipment knocks down the value of old equipment. The elaborate depreciation schedule they have built, based on the vintage of plant and equipment is only meaningful to the extent that technological change in the American economy since 1948 has been so negligible that its effect on the valuation of capital can be safely ignored!

What has been done in the LaRouche-Riemann model is to treat the issue of productivity, which derives from technology, as causally primary. Instead of treating the absolute quantities of output as independently meaningful scalar magnitudes, we consider as primary the way in which technological change alters the proportions within that output. Tangible wealth, as Alexander Hamilton insisted two centuries ago, only mediates between one state of productivity and another; it is there to be consumed. What it produces is productivity.

The measure of the rate of change of productivity, or the economic "free energy ratio," the ratio of investible surplus to maintenance requirements, is primary. Of course, the same bookkeeping headaches remain that Fraumeni and Jorgenson struggle with, particularly given the abysmal state of available data. But this methodology, in contrast to the old production function, puts us inside the problem in a way that permits of solution.

Austerity leads to 'double-dip' 1981 collapse

Econometric simulation of the expected behavior of the American economy through the second half of 1980 and through 1981 shows that the present combination of Federal Reserve and administration policies will not produce a recovery at any time in the forseeable future. The pattern shown by the computer is a "double-dip recession," i.e., a brief trend towards recovery during the first half of 1981, followed by a renewed collapse before even half the losses of 1980 have been regained.

We do not present this scenario as a forecast so much as a guide to the problems ahead during the next 18 months. Assuming that the policy environment defined by Federal Reserve Chairman Paul Volcker prevails through the coming period, this is a "best-case" scenario. What it tells us is that, contrary to what Mr. Volcker, Reagan adviser Alan Greenspan, and others have contended, austerity will not produce recovery. At best, lowering living standards will produce a short-lived false recovery, followed by a second sharp downturn.

Lower living standards created an artificial, temporary increase in productivity sufficient to lift the economy momentarily. However, the task of economic analysis is to determine whether this "lift" is sufficient to compensate for the overhead burdens of a depressed economy or other factors reducing productivity.

The dropoff in living standards raises productivity by shifting investment from low-productivity industries in the consumer sector to high-productivity industries, principally in the capital goods sector. That is the explicit recommendation of most of the "reindustrialization" planners such as George von Furstenberg, whose book is reviewed in this report, and Amitai Etzioni. A shift in the composition of the economy will raise average productivity in output-per-manhour terms.

Such a shift is strongly implied in the first-half profit results for major corporations, as reported by Compustat:

The major losers are associated with the collapse of auto and housing, except for airlines, suffering the effects of deregulation. Trucking will show up in the minus column for the third quarter of 1980, due to the sudden