ECONOMETRIC FORECAST

Two paths into depression for the American economy

by David Goldman

On Dec. 29, 1981, *EIR* published the results of our quarterly economic survey for the fourth-quarter period, employing the LaRouche-Riemann economic model. Presuming unaltered monetary policy in Washington, we projected a year-to-year decline in the output of goods-producing American industry (manufacturing, agriculture, mining, construction, and transportation) of 7.8 percent. At present annual rates the economy is performing at a level 7 percent below the previous year's, with declines ranging from almost 50 percent in steel to 17 percent in auto, and with no significant gains registered in any sectors.

The present forecast, a survey of the second quarter of 1982, is not substantially different from our December survey in terms of its base-line projection. No other computer-based service can come close to making such a claim. We project—on the assumption that the policy of the Federal Reserve remains unaltered through the period under consideration—a 7 percent decline of economic activity in the 1981-82 comparison. That is to say that there will be no economic recovery, but little spectacular downward motion in the rest of the year—with one great proviso: that the financial system does not break down. In the latter case, which now appears next to unavoidable, economic activity will turn down again sharply by year end, and the annual rate of economic activity will be substantially lower—perhaps 13 percent lower—than the 1981 average.

The forecasting effort *EIR* has maintained since 1978 employing the LaRouche-Riemann model does not, as we have emphasized, claim to enjoy the powers of a crystal ball. Once the parameters of financial, fiscal, and regulatory policy are known, the model, which accurately depicts the functioning of the economy's physical aspect, will project the result with great accuracy. However, as the economy nears a political and financial breaking point, it is impossible to "predict" the future. The high degree of accuracy that *EIR*'s forecasting team achieved since 1978 has depended on two conditions. The first is an accurate profile of the future course of economic policy. The second is an economic model capable of analyzing the effect of such policy changes in the real world, as opposed to the Mad Hatter's GNP tables.

Our use of the term "depression" rather than "recession" is not a matter of linguistic emphasis. No one in the United States is blind to the fact that a fundamental deterioration has swamped the American economy during the past decade, raising obstacles to economic growth in the form of inadequate industrial plant, transportation facilities, urban services, educational facilities, and above all, skilled labor and moral qualifications of the labor force generally. Whether or not an apparent "recovery" lifts the economy out of the depth it apparently reached in June—and small positive results are conceiveable as a quirk during the July-September period—the deterioration of the economy continues.

The collapse of capital spending

For the first time in the course of the present depression, which began with the double impact of higher oil prices in June 1979 and Fed Chairman Volcker's monetarist turn in October of the same year, capital spending has collapsed in absolute terms. Apart from the virtual abandonment of the obsolete American steel industry, which the major steel companies expect never to recover, the 15 percent reduction of the level of oil drilling since this time last year, the reduction of machine-tool orders to one-third their level of two years ago, and the mass cancellation of aircraft orders, have generated a 20 percent per annum rate of contraction in capital goods output. Even the formerly startling growth in the electronics sector has turned into stagnation, while basic capital goods are in a situation comparable to the worst of the last Great Depression.

This fact has toppled the standard "recovery" forecasts, which simply assumed that since consumer spending for durable goods had fallen so far below the rate of replacement of such goods, consumer spending had to pick up, if modestly, and generate an economic recovery. Such a recovery has already taken place, led by auto and other big consumer items—but only relative to the worst of the December 1981 period. Calculating

the impact of the estimated $45 billion in combined tax cuts and transfer payments entering the income stream this summer, conventional forecasts have made a seemingly convincing case for a modest recovery—and thereby demonstrated that they understand nothing of whence we have come and whither we are going.

GNP analysis and conventional econometrics cannot answer the most elementary of all questions about economic performance, namely *what is it about our present economic activity that will generate growth or decay in the future?* To reiterate our characterization of the economic problem in our Dec. 29 forecast:

"Since 1974, the United States has undergone fundamental deterioration in productive capability, characterized by:

1) A collapse in relative productivity that has made unfavorable trade balances a structural condition;

2) A diversion of 40 to 50 percent of investment resources into investment in expensive energy-producing or energy-saving areas, with consequences much greater than the intitial cost of higher energy prices;

3) Virtually no growth in productivity during the past three years (while Japan, for example, has averaged more than 8 percent productivity growth per annum); and

4) Adverse shifts in employment favoring white-collar and service employment over goods-producing employment."

To concentrate on the second point: at least half of all capital investment in the United States (gross, not net) has been directed toward energy-saving rather than raising productivity; the remaining capital investment *is not sufficient to even maintain the existing stock of plant and equipment.* That the fundamental productivity level of the economy should continue to fall is therefore not surprising; as *EIR* demonstrated in a computer-based analysis released April 6, 1982, the overall productivity level of the economy correlates precisely with the rate of improvement of national infrastructure.

Supposedly, the attrition of older industries would make way for the accession of "sunrise" industries, e.g., high-technology electronics or aerospace. This favorite "structural" analysis of American economists, repeated ad nauseum in the glossy business weeklies through the past several years, has turned out to be an even crueler hoax than the "business cycle" bone-casting process. In our first analyses of the "sunrise-sunset" business in 1980, we employed the LaRouche-Riemann model to analyze how much of the "new industry" phenomenon represented more capacity to reproduce the economy's physical existence, and how much reflected garden-variety additions to corporate and government overhead costs. We concluded that the "structural shift" was hot air, because it favored industries that represent overhead rather than future growth capacity.
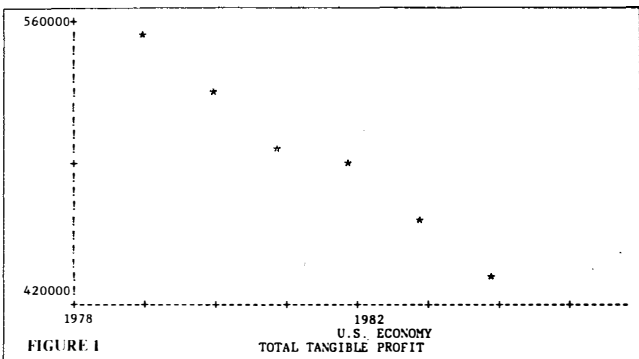
How the LaRouche model works

Despite a bewildering complexity of Rube Goldberg devices that link everything from consumer quirks to sunspots, conventional econometric models have failed, because they do not ask the simple and essential questions which will yield useful answers:

1) At what technological level does productive labor function (measured by value-added per unit of labor)?

2) What is the capital requirement in terms of machines and raw materials per unit of value added?

3) How many overhead employees are maintained per unit of productive labor?

4) How much capital equipment (office equipment, buildings, military goods, etc.) does the overhead consume?

5) How much capital investment is available after depreciation costs are met?

6) How much value-added does each industrial or other goods-producing sector contribute to the economic stream?

7) How much is returned to each sector, after deductions for social overhead costs, in the form of new investment?
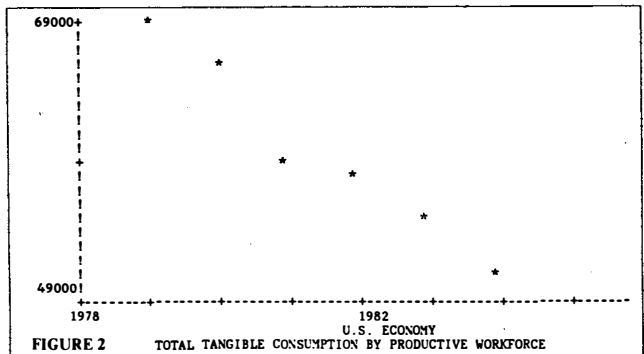
The LaRouche-Riemann model, in its present generation, converts these questions into time-rate-of-change equations, which the computer solves simultaneously, generating a future economic profile on the basis of investment decisions affecting these equations. In its next generation, now under preparation, the model will evaluate the effect of population and labor force, as well as energy-flow characteristics, on the "long wave" of economic performance.

To the extent that the analyst can accurately estimate the impact on these equations of economic policy decisions, the model will, as it has, generate quite accurate results. In principle this is not difficult; we know that higher interest rates will divert corporate and household income flow away from productive expenses, and depress economic activity, for example; this diversion is readily estimated. Military spending is a trifle more complex; it changes the investment mix, increases overhead costs of the economy, but tends to raise investment in the more productive sectors. Depending on the associated technology it may have a variety of different effects. The present Reagan program, however, has few technology benefits, and raises productivity only to the extent that military spending favors sectors that are already more productive, i.e., it generates a one-shot rise in productivity. The present forecast combines inputs reflecting the interest-rate problem, the military budget, and the present budget's tax cut whose effect is much smaller than GNP forecasters are programmed to believe.
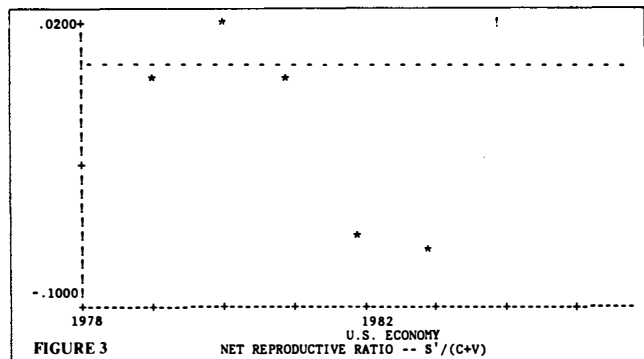
Viewed together, the LaRouche-Riemann model's measures constitute an accurate portrayal of the econo-

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FIGURE 2   TOTAL TANGIBLE CONSUMPTION BY PRODUCTIVE WORKFORCE

The wage bill in terms of tangible goods, i.e. the bill of consumption of the goods-producing labor force, will continue to decline under the present monetary regime during 1982 and 1983.

FIGURE 3   NET REPRODUCTIVE RATIO -- S'/(C+V)

The ratio (S'/C+V) is the model's fundamental measure of economic performance: it expresses the net surplus or deficit of tangible production relative to the production costs, in labor and capital, over the previous production period. Since 1979, with a brief interruption, this ratio has been negative for the American economy, with the major decline registered during late 1981. The model shows that the level of −0.7, or negative 7 percent per annum growth, will continue at approximately the same level through 1982 and 1983.
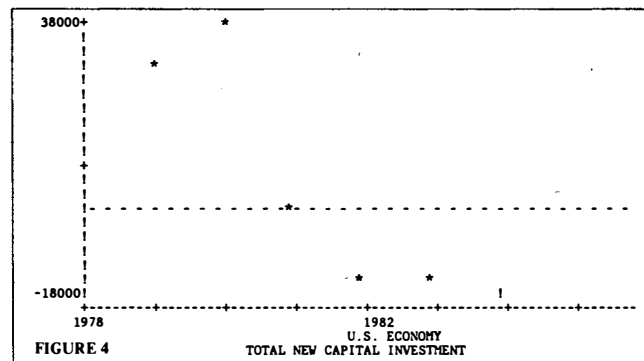

FIGURE 4   TOTAL NEW CAPITAL INVESTMENT

Figure 4 shows that, in contrast to the earlier period of steep decline over 1980, the principal new feature of the continuing depression is the collapse of the capital goods sector. The model's measure graphed above shows capital investment net of replacement costs existing capital stock, calculated according to the Commerce Department's extremely conservative estimate of depreciation requirements; the actual depreciation requirements are much worse. Even by this measure, however, U.S. industry is presently investing at a negative $18 billion annual rate, against a positive $38 billion annual rate (both in constant 1972 dollars) before the first Volcker recession in 1980. That is an extraordinary rate of net disinvestment.

FIGURE I   TOTAL TANGIBLE PROFIT

Under the present monetary regime, the rate of decline of the U.S. economy already registered during the second half of 1981 and the first half of 1982 will continue through 1982 and 1983. The graph shows tangible profit, or value added adjusted for inflation, in the economy's productive sectors, falling at a 7 percent annual rate.

my's condition in the medium term, noting the absence of changes in population characteristics which we are currently adding to the model.

The forecast

Figure 1 shows the economy's total value-added in tangible terms, or economic profit: goods produced in excess of their capital-plus-labor production costs. Over the 1979-83 period this will fall by one-fourth, assuming an unchanged policy profile in Washington, from about $56 billion to about $42 billion (constant 1972 dollars).

Figure 2 shows us that the decline in profit is the direct result of a similar degree of attrition of the productive labor force (measured by the output of tangible consumption goods consumed by the productive labor force). The labor-force graph has the same curve as the value-added, or tangible-profit, graph, which is to say that the productivity of labor remains unchanged.

Figure 3 shows the economy's growth rate, $S'/C+V$. That is to say, the portion of the tangible profit available for reinvestment in additional capital and labor after overhead costs are deducted is divided by the capital and labor costs required to produce that volume of profit. In the model, as in the real world, expenditures for overhead are strictly one-way: they represent consumption but no production. The determinant portion of the economy's output is the reinvestible portion of the tangible profit, or the net profit; the determinant ratio $S'/C+V$ is the rate of production of net profit. Calculating the effects of the present policy mix, the model projects a negtive 7 percent growth rate for 1981-82 (in a year-to-year average; the graph does not necessarily reflect quarterly fluctuations), and a slightly lower rate of decline for 1983.

Figure 4 shows the portion of the net profit (or negative net profit) devoted to new capital investment; as is clear, the bulk of the decline in net profit is taking place in the capital goods portion of the economy. In consequence of the energy-related investment boom, capital investment remained positive overall in the earlier phases of the depression, as the graph shows. However, since this investment merely substituted capital and labor for energy, without improving the productivity of labor, it could not be sustained. The collapse of investment, which translates into an expected 20 percent reduction in capital spending over the year, reflects the rollback of oil drilling, the abandonment of steel, and so forth.

Figure 5 shows the consumption of raw materials and energy in the production process; what is interesting is the steepening of the curve of decline during the second phase (1982-83) of the depression, as more capital-intensive sectors are brought down.

Figure 6 shows the halving of value-added in the steel industry over the 1979-83 course of the depression,
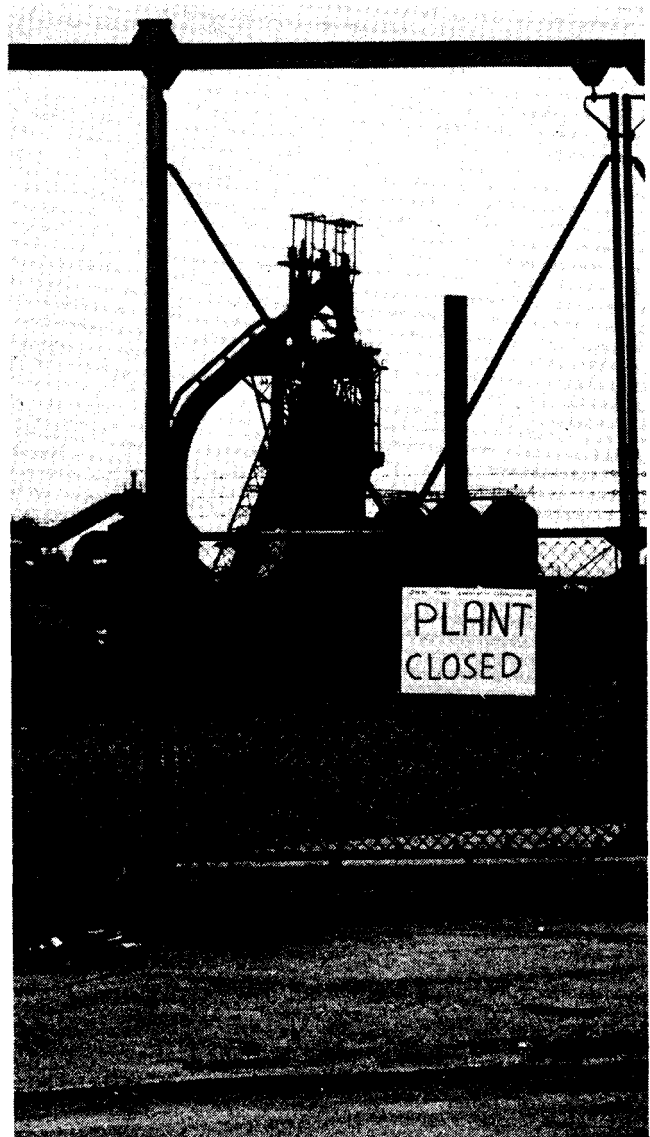
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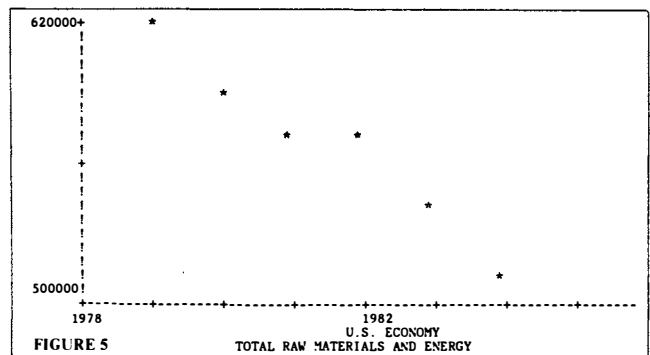
FIGURE 5 — U.S. ECONOMY — TOTAL RAW MATERIALS AND ENERGY

As the most capital-intensive sectors of the economy close down under the impact of the capital spending reduction shown in Figure 4, consumption of raw materials and energy declines more sharply than in the past. Figure 5, which shows a 12 percent reduction in raw materials consumption over the 1982-1983 period, reflects the halving of steel output and sharp reductions in other primary producing sectors.

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FIGURE 6              U.S. ECONOMY IRON AND STEEL SECTOR
                             TANGIBLE PROFIT
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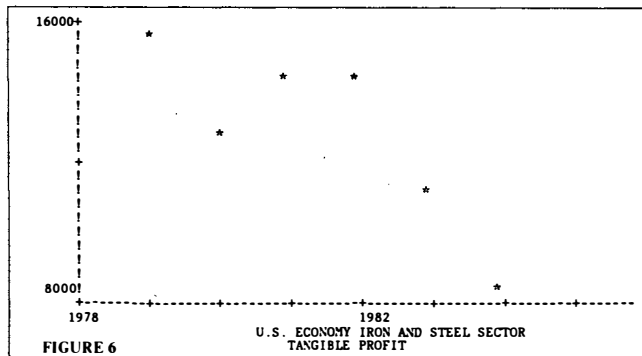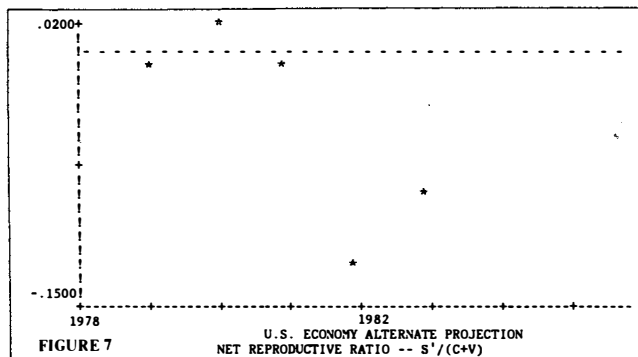
Figure 6 shows the steep decline of what was formerly the economy's largest single sector, iron and steel. By the end of 1983 the sector is expected to be only half as large as before the Volcker monetary policy began, with most of the decline occurring during 1981; that is to say that the steel sector is not expected to rise this year above the present 47 percent capacity utilization rate and is expected to fall slightly again during 1983.


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FIGURE 7            U.S. ECONOMY ALTERNATE PROJECTION
                   NET REPRODUCTIVE RATIO -- S'/(C+V)
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Under conditions of sharply curtailed credit extension, i.e. a financial "crash," in which banks are forced to pull in loans to corporate customers, the economy will fall more dramatically than under present circumstances, in which corporations are still able to refinance their debt but have difficulty obtaining credits to expand production. The assumption in the alternate projection is somewhat arbitrary, i.e. a halving of the present rate of credit extension; it is meant to indicate only generally how the economy would behave under conditions of financial collapse. In this case the key growth ratio falls to −13 percent per annum, against 7 percent in the first forecast.


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      1978                    1982
FIGURE 8            U.S. ECONOMY ALTERNATE PROJECTION
                          TOTAL TANGIBLE PROFIT
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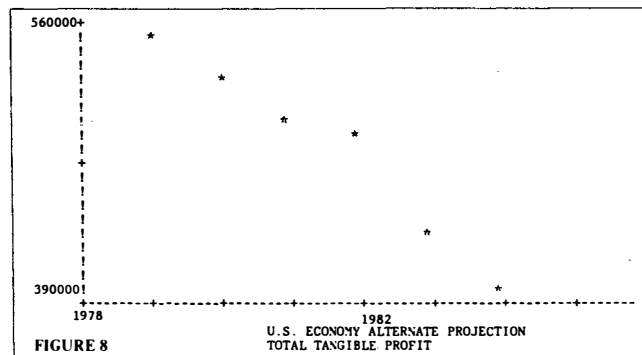
Figure 8 shows the same measure of total economic profit, or value added, shown under different assumptions in Figure 1. Assuming a dramatic contraction of credit, the level of tangible profit will fall to $39 billion (1972 dollars) rather than $42 billion as under the previous scenario.

one of the major factors accounting for the declines registered in the foregoing two graphs. Of course, the average annual values displayed do not reflect the precipitous collapse of the industry during the last 12 months.

In all, the model generates close to 1,000 such graphs (including rate-of-change measures of the same variables). The above figures are directly computer-generated and computer-drawn. The measures shown summarize the most elementary characteristics of economic performance; the full profile is published quarterly as a subscription service.

The financial crash projection

All the above profile assumes is that the present grinding pressure of interest rates will continue, but that the financial system will not break down, i.e., that banks will continue to lend to industrial corporations at the same 25 percent per annum growth rate they have for the past year. Since, as we discuss in the next section, the present rate of lending represents simple refinancing of interest payments that corporations cannot pay without new loans, the first scenario should be viewed as contaminated by extremely optimistic assumptions. If the present rate of lending slows—in this alternate projection we have arbitrarily, assumed that it would halve—corporations would have to liquidate capital and labor to pay debt, and reduce production expenditures accordingly. We have treated the assumed requirement for payment of interest at the expense of production as a de facto rise in overhead costs for purposes of modeling.

Figure 7 shows that the impact of a financial contraction, under assumption of a halved rate of credit extension, would be a 13 percent negative growth rate by year end, i.e., the rate of economic activity in December 1982 would be 13 percent below the 1982 average. Note that the net reproduction rate remains sharply negative, but not nearly at the 1982 level, for 1983.

Figure 8 shows the measure of total tangible profit for the U.S. economy under the second set of assumptions, falling to $39 billion rather than $42 billion in the first projection.

These are grim results indeed, and the extent to which the abandonment of capital stock in steel and other industries will inhibit future recovery—let alone the rapid attrition of industrial labor—remains to be determined. A program of capital-stock rebuilding, starting with electrical-utility and other basic infrastructure requirements, could, starting from the 1981 economic profile, still yield an economic recovery in the middle and late 1980s, as we demonstrated in the aforementioned April 6 survey. Whether the economy could do as well after the current shock remains to be determined.