David Goldman on U.S. productivity requirements for the industrial base

EIR *Economics Editor David Goldman's presentation to the conference was based on this report.*

A September 1981 computer-based analysis of the administration's military spending plans for the years 1982-1985, jointly prepared by the author and Sylvia Barkley of the Fusion Energy Foundation, provided two policy conclusions of the greatest importance:

First, that under the present economic environment, the President's program will founder on *the inability of the economic base to sustain peak levels of military and related industrial output* by no later than 1984 and; second, under an economic environment characterized by productivity gains of the magnitude associated with the 1960s NASA mobilization of industrial resources for the moonshot, the American economy *could sustain a military budget increase considerably larger than that proposed by the administration.*

The results of the analysis, conducted with the LaRouche-Riemann computer model, are displayed in an accompanying series of graphs generated by the computer program. They portray only one side of the conclusions: namely, that the economy will not be able to sustain the proposed buildup under the assumption that the productivity performance of the American economy remains what it has been during the past two years, i.e., that zero productivity growth prevails.

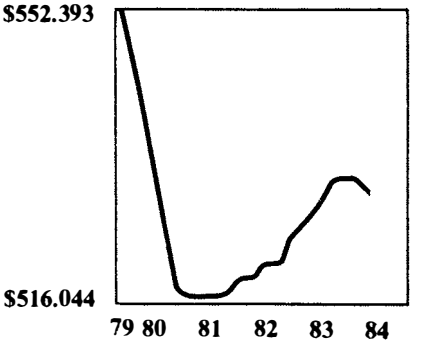
What is important by way of emphasis—and what the LaRouche-Riemann model takes as a point of departure—is that military expenditure is *overhead cost*, a tax on productive resources of the economy. Conventional models of the Wharton School variety are driven by "demand" functions which assume that the economy will somehow provide whatever goods are asked for at a certain price; they are not capable of inquiring as to the economy's capacity to ultimately perform a task. What is important in the military case is that goods are removed from the capital-equipment sector of the economy and left on the economic sidelines, rather than re-circulated back into the productive process.

In the LaRouche-Riemann model's terminology, the ratio of overhead expenditure per productive worker employed, D/V, rises. This can only be compensated for through an increase in the production of surplus (valued added in excess of production costs) per productive worker employed, or S/V.

Since the surplus of the productive sector pays both for the expenditure of the economy's non-productive sectors, including the military, and for reinvestment into the productive sector, any rise in overhead, or non-productive expenditures, must be at least matched by a rise

Figure 1

Total U.S. surplus
(in billions of 1972 dollars)



in gross surplus; otherwise the rate of reinvestment will decline. In the case that the rate of reinvestment becomes negative, total economic output will ultimately fall.

That is precisely what happens under the fixed-productivity set of assumptions for the American economy. This set of assumptions represents something more than a mathematical exercise. Aerospace manufacturers, for example, laid off substantial numbers of engineers and skilled workers during the summer of 1981 and have no assurances that sufficient numbers of them could be found again should the B-1 bomber orders finally arrive. In some sectors of the military-related industrial sphere, an actual fall in productivity is foreseeable when manufacturers attempt to gear up to peak production levels.

The total economy

Figure 1 shows the total size of surplus in the economy under the set of assumptions noted. Data through mid-1981 are historical data for physical output in constant 1972 dollars in excess of labor, raw materials, and depreciation costs. Assuming no other changes in factors affecting economic performance, i.e., no general improvement in credit-market conditions, but also no general disruption of credit markets, and the same tax policy that Congress agreed upon earlier this year, the economy will undergo a very modest initial recovery in response to the military program. However, the actual surplus output of the economy will not recover more than half of its lost levels with respect to 1979. By the end of the program the economy's surplus output will have begun to turn down again.

Figure 2, or net reinvestable surplus, shows the above category with overhead expenditures deducted. The recovery of the investment quotient of the economy from about negative $9 billion during 1979 to about positive $9 billion by mid-1981 reflects the modest, false-start recovery the economy achieved after the major 1979-1980 downturn. However, the rate of reinvestment drops back into the negative, reaching the depths of the previous recession, by 1984. The reason for this, we shall see in a moment, is that virtually all the available surplus is consumed in the non-productive sphere.

Figure 3 shows the economy's most important measure, its "instantaneous growth rate," or, perhaps better put, its *ability to grow.* The peak rate of growth achieved during the false-start recovery, the graph shows, was 1.2 percent. Under this scenario, the growth rate will become negative by the end of 1982, and fall to about negative 3 percent by 1985.

Figure 4 shows the reason for these developments: the sharp recovery of the rate of non-productive expenditures (measured according to the volume of physical goods diverted into non-productive expenditures). While the surplus production of the economy remains fairly stagnant, failing to recover more than half its pre-recession level, the rate of non-productive expenditure nonetheless rises all the way back to its pre-recession level. The discrepancy comes out of the volume of net reinvestable surplus and out of the economy's instantaneous growth rate.

Sectoral analysis

In less technical terms, what this means is an economy in which the non-military-related sectors, e.g., auto, housing, steel, primary metals, are starved for capital and skilled labor, and continue to decline fairly sharply, while the military industries continue to rise.

What is most striking about the computer results, which build in a priority investment structure for the military-related sectors, is that *the initial growth of the military-related sectors quickly peters out.*

Transportation equipment is the most important of

Figure 2
Total U.S. net reinvestable surplus
(in billions of 1972 dollars)

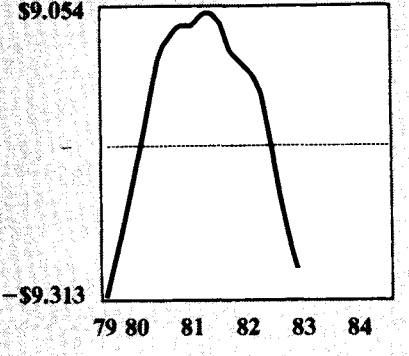


Figure 3
Total U.S. instantaneous growth rate
(in percent)

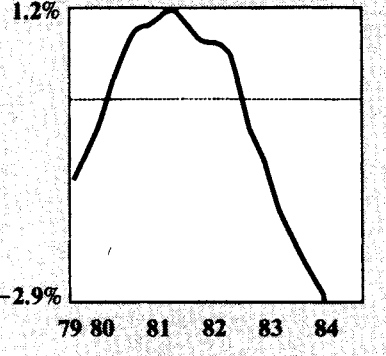


Figure 4
Total U.S. non-productive expenditure
(in billions of 1972 dollars)

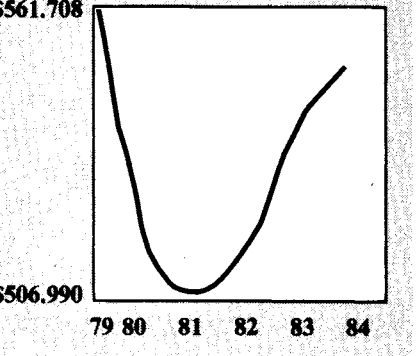


Figure 5

Transportation equipment (excluding auto) surplus
(in billions of 1972 dollars)

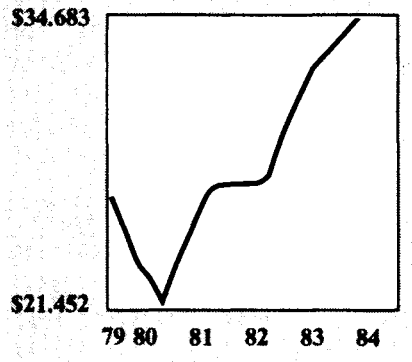


Figure 6

Transportation equipment (excluding auto) surplus
(percent of total U.S. surplus)

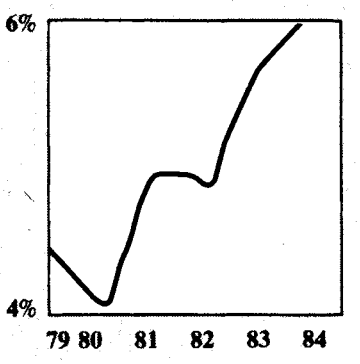
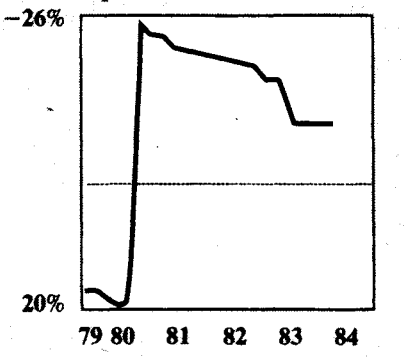


Figure 7

Transportation equipment (excluding auto) percent growth of surplus



the military-related sectors, producing about one-quarter of the total military procurement budget. The mild recovery of the sector (which excludes auto) up through 1981, followed by a stabilization of output, reflects the historical data. Following the introduction of the military program, which first shows up under our assumptions during the 1982 year, production of the sector rises substantially, to about half again its 1979 level. The surplus output of the sector is displayed in Figure 5.

Figure 6 shows the surplus production of **transportation equipment** as a percentage of total economic surplus, rising from about 4 to about 6 percent—a major increase in the importance of the sector with respect to the rest of the economy.

However, more significant is Figure 7, which shows the percentage growth rate of the sector; after falling sharply to negative 20 percent at the depth of the recession in 1979, the sector's growth rate shoots up to 20 percent positive growth, and then falls, by stages, to barely 5 percent. This occurs as the sector fails to find the supplies and labor required to sustain such levels of output increase from the declining remainder of the economy.

Fabricated metals, whose surplus output is shown in Figure 8, contributes indirectly to the military; its output does not change substantially over the entire period from 1981 to 1984.

Figures 9 and 10 show a revealing pattern for the **electronics** sector. Surplus output rises steadily, as shown in Figure 9, but Figure 10 shows immense divergences in growth rates. The initial 5 percent-plus growth rate

Figure 8

Fabricated metal items surplus
(in billions of 1972 dollars)

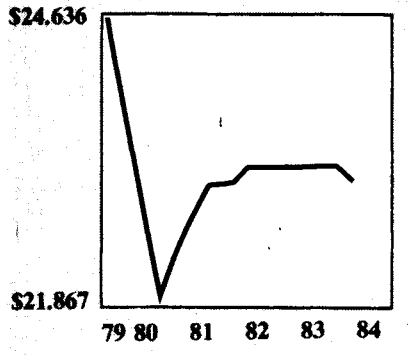


Figure 9

Electronics surplus
(in billions of 1972 dollars)

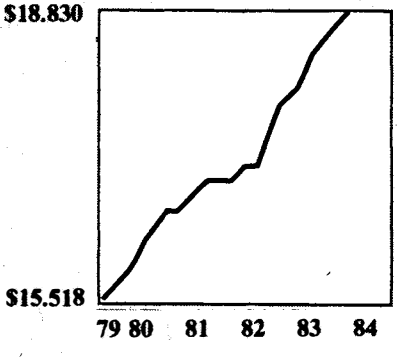


Figure 10

Electronics percent growth of surplus

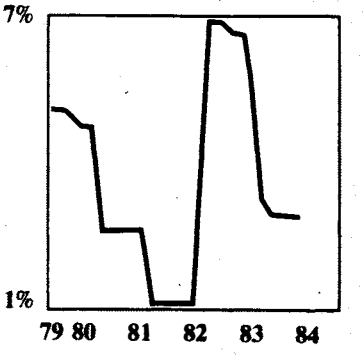


Figure 11
Instruments surplus
(in billions of 1972 dollars)

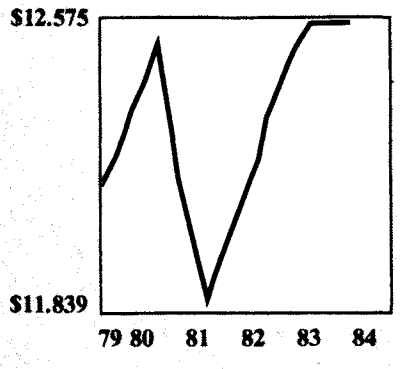


Figure 12
Instruments percent growth of surplus

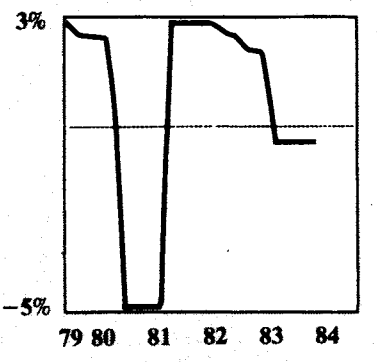
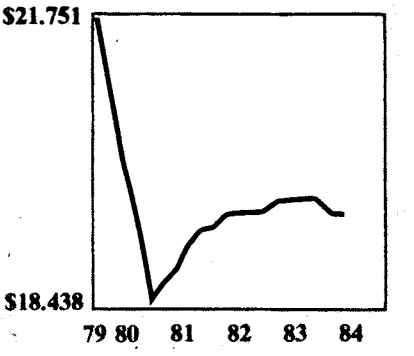


Figure 13
General machinery surplus
(in billions of 1972 dollars)



registered for the sector during 1979 fell, according to historical data, to the 1 percent range, during 1981. Under pressure from military orders, the growth rate shoots back up to 7 percent, but then rapidly falls to about 3 percent as the pace of military expansion cools down, involuntarily, due to insufficient productivity.

The **instruments** sector, an even higher portion of whose output is sold to the military, shows a similar, but even more extreme pattern of divergence, in Figures 11 and 12. Figure 11 shows its absolute level of surplus output; Figure 12 shows the percentage growth rate of the same data. After falling sharply into the negative at the depth of the recession, the sector's output jumps by 3 percent a year during 1982 and 1983, or the same rate of growth it registered during 1979, only to fall back again to roughly zero by the end of the period under discussion.

Figure 13 portrays the stagnation of output growth of another military-dependent sector, **general machinery.**

The above set of projections for the American economy under the administration military budget does not begin to state what *will* happen, but only—and this clearly—what is *necessary* should the economy succeed in re-arming the United States. The computer model calculates the minimum productivity growth rate required to sustain the current military buildup to be 1.8 percent per annum, modest by international standards, and very close to the economy's average productivity growth rate for the decade of the 1970s. Less than this will produce a significant failure.

Initially, the *average* productivity of the economy rises only because the mix of industrial output has shifted toward the more productive military-related sectors, which in general employ more skilled labor and more advanced production methods. However, without major *civilian* investments into the economy, the growth of productivity through these fortuitous factors grinds to a halt, as does the military buildup.

However, during the NASA program's height of spending, the U.S. economy reached a 4.5 percent annual rate of growth of productivity, less than half of what the Japanese scored last year, but nonetheless impressive; the entire decade of the 1960s showed a 3 percent rate of increase of productivity. Growth rates of this order of magnitude are in excess of what is required to field an even more ambitious re-armament program than the administration has yet considered.

The economic problem comes down to *how to make military spending "self-financing."* If military procurement concentrates on high-technology areas with considerable civilian spinoffs, as per the NASA experience, and in the present case orienting more toward high-energy physics applications, the civilian spinoffs will more than compensate for the loss to overall output. That is, the *increase in unit of surplus per employed productive worker through rapid introduction of new technology*—which produces quantum leaps in the productivity of industrial processes—will almost certainly outstrip the rate of rise in overhead expenditures.

This chain of reasoning brings us back to the qualitative arguments Dr. Steven Bardwell introduced against the Weinberger Defense Department's military plans. More important than the quantitative evaluation of the economy's ability to produce military goods on a sustained basis is a qualitative reading of the impact on the economy of the military program itself. Under the right sort of military program, the economy could certainly sustain a spectacular buildup; and that is the principal policy conclusion to be drawn from this computer analysis.