The LaRouche-Riemann measure crash-program

by Lyndon H. LaRouche, Jr.

Up to the EIR's *October 1983 "Quarterly Economic Report on the U.S. Economy," the data employed for the LaRouche-Riemann quarterly forecasts were chiefly supplied by reports of the U.S. federal government and Federal Reserve System. The analysis performed to arrange this data-base for forecasting operations had been accomplished chiefly by recasting the chart of accounts of the National Income Accounting system published by the U.S. government and Federal Reserve. The October report contained a discussion, excerpted here, of improvements in the economic model effected during 1983, and directions in which the work will now move.*

Beginning with the October 1983 quarterly report, a series of changes have been begun, beginning step-by-step improvement in assembly of data-base and in choice of data-base. Because of the monstrous increase of willful fraud in U.S. government and Federal Reserve statistics and reporting during the recent nine months, the data-base supplied from these sources has become worthless even as a crude approximation of actual performance in the U.S. economy. Unemployment was "reduced" by dropping approximately one percent or more of the total labor force from the data-base by the Bureau of Labor Statistics. The rate of inflation was fraudulently cut approximately in half by various tricks, such as the Quality Adjustment hoax. Data supplied by industry associations, already inflated significantly above actual in some cases, were inflated once again by the Federal Reserve, with no explanation of the methods of calculation or assumptions used for manufacturing this hoax.

As a result of these and other extravagant manipulations of data, a grave economic decline—an ominous rate of decline—in the U.S. economy was falsely reported as a significant "economic upswing."

Obviously, such a falsified change in the data-base of reported statistics could not be used for a quality forecast at this juncture. Therefore, the staff of *EIR* deployed a large part of its personnel resources to dig into primary and secondary data on production, employment, and sales in key sectors of the U.S. economy. The purpose was to develop a fair estimate of both the methods and extent of the manipulation of statistics, and by that means to arrive at at least a reasonable estimate of what the actual recent performance has been. Although the *EIR*'s forecasts still reference the statistical reporting by the government and the Federal Re-

model expands to development needs

serve, that data has been corrected to reflect at least as much of the faking of reported official statistics as we have been able to estimate with fair certainty. Now, with cooperation from concerned citizens, some concerned public officials, and by other means, the *EIR* staff is beginning to develop a data-base for performance of the economy which will be to an increasing degree independent of official reporting. . . .

Why the LaRouche-Riemann method is superior

The reasons for the unchallenged superiority of *EIR*'s quarterly and medium-range forecasts are easily identified. An economy consists chiefly of two general components. One is the production of physical consumer and producer goods, plus transportation and production and maintenance of basic economic infrastructure. This component of total throughput is analogous to the direct production-costs of a particular firm or industry. The remainder of the throughput—administration, services, selling costs, waste, and unemployment, for example—are analogous to the non-productive "overhead expense" of farms and industries. By breaking the total GNP of the U.S. economy down to these two general categories—"production costs" versus "overhead expense"—and then subdividing each category appropriately, *EIR* treats the U.S. economy as a whole as if it were a single, consolidated agro-industrial enterprise. By contrast, competing forecasts treat overhead expense—including speculative appreciations of rental-incomes, and spiralling debt-service charges—as contributing output in the same sense that production of physical goods contributes output.

This is the general reason for the superiority of the *EIR* forecasts since they were first regularly published, in November 1979. Additionally—and this is the sophisticated part of *EIR*'s forecasting so far—the computer programs developed echo a physical principle discovered by the famous Professor Bernhard Riemann in 1859. This principle prompts the name "LaRouche-Riemann method." This "sophisticated" feature of the programming enables us to establish the effect on the rates of economic growth of production of physical output caused by a raising or lowering of the average level of technology.

So far, the *EIR* forecast has made this sort of calculation by using a set of linear inequalities specified by LaRouche in 1979, linear inequalities which assume that the rate of per-capita capital investment (and maintenance of depreciated production assets) correlates with increasing or lowering of the level of technology in production. In other words, net disinvestment, through failure to maintain infrastructure or failure to invest in maintenance and replacement of capital stocks of agriculture and industry, represents a net lowering of the average level of technology. So does an increase in the percentile of unemployment in the labor-force—since a smaller percentage of the labor-force is producing.

Improvements or net disinvestment in technology proceed by ratchet-like steps upward or downward in rates of net economic growth of production of physical output. Riemann's principle provides the method for estimating the appearance of these ratchet-like phase-shifts in rates of economic growth.

These methods used by *EIR* up to this time do provide a very good estimate of probable economic growth or contraction under even slightly abnormal conditions in the economy as a whole. Therefore, no one should find anything mysterious in the unapproached superiority of past *EIR* quarterly forecasts over those published (at higher prices, incidentally) by Wharton, Chase Econometrics, and so forth. *EIR*'s performance has been reliable and competitively excellent, but it does not satisfy us—nor should it. Major improvements are therefore under way.

We report, briefly, the direction in which these improvements are now taking us, and then identify the practical importance of such next steps.

The true measure of economic performance

The proper datum for measuring the actual performance of any economy—at any point in past or future human prehistory or history—is named an *increase in potential relative population density*. We break this term down, piece by piece, and then show why this is the only valid datum for measuring economic performance.

Population density measures number of persons per average square kilometer of habitable land. As a measure of economic performance, it must measure the number of persons sustained, per square kilometer, by means of the productive and related activities of the population inhabitating that territory. It measures the ability of a population to sustain itself at a certain level of population-density.

The included cause of difficulty in attempts to effect such a measurement is the fact that human populations' required consumption per-capita is not fixed. There is no level of consumption which represents "subsistence-minimum levels" for all societies. Broadly, as the productive powers of labor increase, this requires an increase in standard of per-capita household consumption, more education, increase of leisure, and so forth. We must measure the percentile of the total labor of a society required merely to maintain the level of per-capita household consumption required for that level of average productivity, and study the way in which the remainder of production-output affects increase or decrease in the attainable levels of population-density.

Land is not of uniform quality for habitation. The comparison of rich river-bottom land with desert land illustrates the general point. Yet, the case of the development of the rich Imperial Valley of California out of desert also illustrates that there is nothing permanently natural about the relative qualities of land. The relative quality of land is always a net result of combined improvements and depletion. Instead of simply population-density, we must measure *relative* population-density.

Actual population-density is not a proper measurement. We must determine what the relative population-density could grow to become given the present general level of technology. We must measure *potential* relative population-density.

This is not yet sufficient. For each relatively fixed level of technology, there is a corresponding spectrum of useable natural resources. If a society continues in approximately a fixed level of technology, at least some of these resources will become marginally depleted. As a result of such depletion, the amount of labor required to produce the raw-materials component of the total market-basket of combined consumer-goods and producer-goods requirements will rise per-capita for the society as a whole. As a result of this, the potential relative population-density as such is the datum for measuring economic performance.

Society may overcome the effects of marginal depletion of natural resources by no other means but advances in technology. Advances in technology solve this problem of depletion in two degrees of approximation. First, if the rise in average productivity caused by advances in technology is greater than the fall in productivity caused by rising per-capita labor-costs for required raw-materials components of market-baskets, the potential relative population-density of society is maintained successfully. Second, those leaps in levels of technology which are recognized as the meaning of "technological revolutions" cause a revolution in the definition of the total spectrum of useable natural-resource forms of apparent limits to growth.

However, advances in technology have the general effect of increasing the complexity of the social division of labor. These increases require an enlargement of the labor-force, and therefore also an enlargement of the population-density. For this reason, the only datum which adequately measures performance of economies is *increase of the potential relative population-density*. . . .

Over the recent years, important research has been done by the *EIR* staff on past leaps in technological progress in the U.S. economy, including the work of Dr. Steven Bardwell on the electricity revolution breakthrough in productivity at about 1910, and the work of the staff on the impact of the 1939-43 U.S. economic mobilization. Whereas our earlier forecasting has employed an indirect approach to estimate, rather successfully, the shifts in levels of technology in the U.S. economy as a whole, we are presently determined to approach this measurement more directly.

The practical importance of doing so at this point is as follows.

The new U.S. strategic doctrine—of Mutually Assured Survival—which President Ronald Reagan announced on March 23, 1983, requires a crash-program effort totalling directly about $200 billion, in 1983 dollars, over approximately five years ahead. Although the new defensive-weapons systems will make use of advances in basic computer-technology, gyroscope design, and so forth, the heart of the new systems draws directly from two interrelated areas of breakthroughs now occurring on the frontiers of physics: plasma-physics research overlapping the development of controlled thermonuclear fusion as our primary energy-source of the coming period, and directed-beam technologies in the areas of high-powered, short-wave-length lasers and particle-beams, most emphatically. With the right assortment of such beams, less than 10,000 kilowatts of pulse can destroy a thermonuclear ballistic missile within a fraction of a millisecond. Contrary to old cronies of Bertrand Russell and Leo Szilard, such as Hans Bethe, Richard Garwin, and so forth, such technologies are either already existing or are within reach within a few years—not decades—ahead.

Such a military crash-program will have effects upon the U.S. civilian economy which dwarf the earlier gains in technology contributed by the first ten years of NASA's research-and-development build-up. To produce these systems, we shall be required to build up greatly the machine-tool sector of industry, and to begin spilling into the civilian sector of the economy new kinds of machine-tools employing laser and other advanced technologies. With these tools to encourage us, we shall produce materials we could not cut before the development of high-powered lasers, and will increase the average productivity of labor by—conservatively—two and three times present levels during the remaining years of the present century. The advanced technologies embodied in improved machine-tools will spill over from machine-tools into capital-goods generally, and from capital-goods generally into production generally.

The greatest technological leap in history

This revolution in military technology is merely a reflection of the fact that mankind stands at the edge of the greatest technological leap upward in history. The major revolutions will occur on three frontiers. First, breakthroughs in the plasma-physics of controlled thermonuclear fusion. Second, the ability to concentrate the vastly increased energy-flux densities of advancing plasma-physics technologies into lasers and laser-like devices as tools of regular production. Third, breakthroughs in bio-technology—and mastery of the processes of aging of human tissue—which will revolutionize aspects of industrial production as well as agriculture, and mean foreseeable prolongation of life-span by decades. Every other technological advance, for the foreseeable decades ahead, will center around breakthroughs in these three areas, and coordinated steps toward both powered space-flight (using fusion energy) and the beginnings of man's colonization of the Moon and Mars.

The policy-shaping and other decision-making which government and entrepreneurs must make in such an environment of technological breakthroughs requires a shift in practice of economic forecasting into emphasis on the foreseeable, direct causal relationship between specific classes of advances in technology and resulting changes in rates of per-capita productivities and general economic growth.

To analyze the impact of technology in this way for effects on the economy as a whole, it is necessary to measure economic performance explicitly in terms of net increase in potential relative population-density.

This begins with an estimated census of households (the irreducible unit of reproduction and maturation of new individuals), and the correlation of total population and its growth-rates with demographic characteristics of classes of households. The labor-force must be measured in total as a characteristic demographic feature of households. The demographic analysis must study the composition of households and total population by functionally defined age-intervals.

The total land-area of the United States must be analyzed for functional characteristics of use, for urban and rural households, agricultural production, industrial production, and so forth. The relative quality of land, as this bears upon potential relative population-density, must be correlated with land-use data.

In this setting, a more rigorous study of basic economic infrastructure must be conducted and the relevant data maintained. This includes water-management, transportation, energy production and distribution, and basic urban infrastructure. At present, since infrastructure is chiefly a function of government and public utilities, economic reporting for the economy as a whole virtually ignores this category of the economy. Estimates of economic growth and contractions presently fail to appreciate the effects of failing to expend governmental funds at federal, state, and local levels for maintenance of this essential infrastructure. The deficit incurred over the past decade totals to an estimated $3-$4 trillion at present! If infrastructure collapses through lack of maintenance and improvements, the whole economy, which rests upon that infrastructure, must come toppling down. . . .

We require the kinds of general economic and management information this turnaround implies. We require the readings on the economy which enable decision-makers to trace out the efficient connection between changes in technologies and the effects of those changes upon potential relative population-density. Gross National Product is the wrong yardstick, increasingly a misleading yardstick: The addition of the salary of an added clerk in the factory's offices is not an increase in the factory's saleable output, and does not replace the shrinkage of production in the factory itself. We must shift to the yardsticks the situation now requires.

This indicates the direction of improvements in *EIR*'s forecasting practices which are beginning step-by-step implementation now. Our former forecasting has been proven the best available, indeed the only competent forecasting publicly available. That was good, but not good enough for the tasks our economy faces now.